



Division of Forensic Science 2015 Annual Report

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*We wish to extend our appreciation and gratitude to **Johna Esposito**
for her excellent work in preparing this report.*

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Executive Summary

The Division of Forensic Science (DFS) mission is to provide sound and timely pathology and forensic science services for the justice system, driven by crimes committed and deaths occurring in the State of Delaware. During 2015, homicides, rape and sexual assaults, firearms offenses and drug cases increased, along with autopsies, cremations and cases processed by the Medical Examiner. Drug-related deaths also increased each year since 2012, specifically those involving fentanyl. As crime and death cases have risen, so has the demand for the DFS services. As highlighted below, shortages of personnel and resources have directly hampered timely provision of drug, and to a lesser extent, DNA analytical services.

The Forensic Chemistry Unit (FCU) is in dire need of additional chemists to process drug cases and commensurate augmentation of instrumentation. The courts and prosecutors have repeatedly expressed dissatisfaction with the FCU's delays in testing drug evidence, in particular cases where incarcerated defendants are awaiting trial. The court has continued, and worst case, dismissed cases that have languished in the FCU backlog. The rise in case submissions, accelerated timeframes for processing Court of Common Plea (CCP) cases, and the newly implemented 60-day Turn-Around-Time (TAT) policy for drug cases have further exacerbated understaffing needs of the unit. To meet the demands of the justice community and needs of the courts statewide, **five** additional chemists, at a minimum, will be required to allow DFS to process drug cases. This will bring the total Controlled Substance (CS) staffing level to **12** chemists. In addition, **three** additional Gas Chromatograph-Mass Spectrometers (GC-MS) and **two** Fourier Transform Infrared (FTIR) Spectrometers will also be needed. **Absent the requested enhancement to FCU staffing and acquisition of the above-listed instrumentation, the consequence will be that backlogs will continue to mount, testing will be delayed, and cases will in all likelihood be continued and/or dismissed.**

The DNA Unit has realized an increase in case submissions during 2015, requiring additional DNA resources to process evidence in a timely manner moving forward. While the DNA unit completed analysis of the DNA caseload in less time than previous years, the TAT was at an undesirable 120-day timeframe. To achieve a 60-day TAT, as expressed by prosecutors on behalf of the courts, the unit would require an enhancement of **four** additional DNA analysts for the unit. **Without the requested DNA analytical personnel, cases will not meet the prosecutive timeframes established by the courts.**

The Toxicology Unit has developed multiple measures to streamline processing of its caseload. To further enhance the unit's efficiencies and expand its ability to identify additional drug compounds, new LC-MS/MS methods need to be developed and validated. This enhancement would not only broaden the unit's drug identification spectrum but would be cost-saving long term, as it would also alleviate having to replace an aging and costly GC-MS instrument. **Funding for research, development, and validation of new methods for the unit's LC-MS/MS instrument is required to enable expanded drug identification from submitted items of evidence. The unit is currently unable to detect certain compounds.**

Summary: (Personnel and Instrumentation Needs)

- 1) **FCU:** Five additional chemists and four instruments are required to process drug cases in timeframes acceptable to the prosecutors and courts.
- 2) **DNA:** Four additional analysts are necessary to process evidence for prosecutions in a timely manner.
- 3) **TOX:** Funding for method development is needed for expanded drug identification of evidence.

Mission Statement

It is the mission of the Division of Forensic Science to provide the most reliable scientific analysis of evidence for the administration of justice.

The Division of Forensic Science

The Delaware Division of Forensic Science (DFS) was established on June 24, 2014 with the signing of Senate Bill 241 by Governor Jack Markell. Senator Robert I. Marshall was the primary sponsor of the legislation with broad bi-partisan support in both the Senate and House. The bill reassigned forensic and pathology examinations, formerly performed by the Office of the Chief Medical Examiner (OCME) within the Department of Health and Social Services (DHSS), to the Department of Safety and Homeland Security (DSHS). In addition, a Commission on Forensic Science was created



Division of Forensic Science, Wilmington, DE

by the legislation. The Commission is charged with providing oversight and guidance to ensure professionalism and integrity within the DFS and to support development and growth that better serves the justice system.

In keeping with the DFS mantra of “Science Serving Justice,” the agency continues to strive to improve efficiencies in its business practices. During the past year, it has broadly enhanced operations and administration, embracing every challenge as an opportunity to improve. Sweeping improvements have been realized in the hiring of additional staff, remediating infrastructure deficiencies, updating IT systems and technical capabilities, initiating analytical processes to better manage and monitor work production and caseloads, renovating the information management system, streamlining analytical processes and strengthening communications to better serve clients, installing a comprehensive security system that has improved access and evidence control and chain-of-custody management, transitioning to a highly regarded accreditation body for forensic audits, and renewing accreditation in pathology. Collaboration with the DOJ has resulted in statewide initiatives for “triaging” DNA evidence, processing of guns and other evidence for DNA, and acceptance by the court of “sampling” methods in high-volume drug cases. Additionally, implementation of a “statewide barcoding” system, a capability unprecedented anywhere else in the country, continues to be explored as a gold standard in “cradle-to-grave” evidence management. The DFS forensic scientists, pathologists, and support staff have persevered through dramatic changes in business practices during the past year while still serving customer needs.

Organizational Structure

The 2014 legislation that established the DFS created a Director position to lead the division and a Chief Operating Officer (COO) position to manage administration. This organizational change now permits the Chief Medical Examiner to focus solely on pathology responsibilities without being burdened with the operational and administrative demands associated with the Toxicology, DNA, and Forensic Chemistry laboratories. Furthermore, the Director provides an administrative and leadership perspective to the DFS team. The new structure of the DFS organization has created a collaborative leadership model, whereby all disciplines are collectively vested in the success of the organization. The leadership team is working to ensure that the citizens of Delaware receive the best forensic science service. To this end, the DFS team strives to maintain the highest scientific standards and is diligently working to ensure organizational and individual integrity.

Assessment, Accreditation, and Quality Assurance

In early 2014, Andrews International, a risk mitigation consulting company, conducted an assessment of the then OCME organization and operations. As a result of the assessment, 94 deficiencies were identified with recommendations cited for improvement. Following a time period for remediation, Andrews International conducted a follow-up assessment of the new DFS in January 2015. All but eight of the findings and recommendations were remediated, since additional funding, time, and resources were required for resolution. As an update for this report, two findings remain outstanding. One would require approval by the Office of Management and Budget, should a comparative study support an increase in salaries enabling the DFS employees to be competitive with their contemporaries in the industry, and the second is a simple technical capability that will be implemented during the course of installing a temperature-monitoring system in the near future.

Accreditation is a key component of the quality assurance program at the DFS. To be accredited means that the various units within the DFS are routinely inspected by outside organizations who ensure that the policies, procedures, and/or practices within the division adhere to strict national or international standards. Standards followed by the DFS include those set forth by the International Organization for Standardization (ISO), the National Association of Medical Examiners (NAME), and Quality Assurance Standards (QAS) established by the Federal Bureau of Investigation (FBI).

The Quality Assurance Manager (QAM) is critical to an effective Quality Assurance Program. In November 2015, the DFS QAM resigned. Toxicology Supervisor Johna Esposito has assumed the QAM role in an interim capacity since that time.

ISO 17025:2005

The International Organization for Standardization is the world's largest developer and publisher of international standards. Laboratories use ISO 17025 to implement a quality system aimed at improving their ability to consistently produce valid results. Since the standard is about competence, accreditation is a formal recognition of the demonstration of that competence.

The DFS was originally ISO 17025 accredited in 2004 and has continually achieved the highest level of quality standard competency for testing with annual re-accreditation. The current ISO 17025 accreditation was provided by Forensic Quality Services (FQS) and is scheduled to expire on June 16, 2016. Recently, the DFS underwent an ISO 17025 audit by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB), which occurred February 9, 2016 through February 11, 2016.

*Accountability is the
courage to hold our team
members to our high
rigorous standards.*

NAME

The purpose of the NAME accreditation standards is to improve the quality of the medicolegal investigation of deaths in this country. NAME accreditation is an endorsement by NAME that the office provides an adequate environment for medical examiners to practice their profession and offers reasonable assurances that the office serves its jurisdiction well.

The DFS has been NAME accredited since 1980 and continues to be in good standing with this organization. The current NAME accreditation expires January 16, 2019.

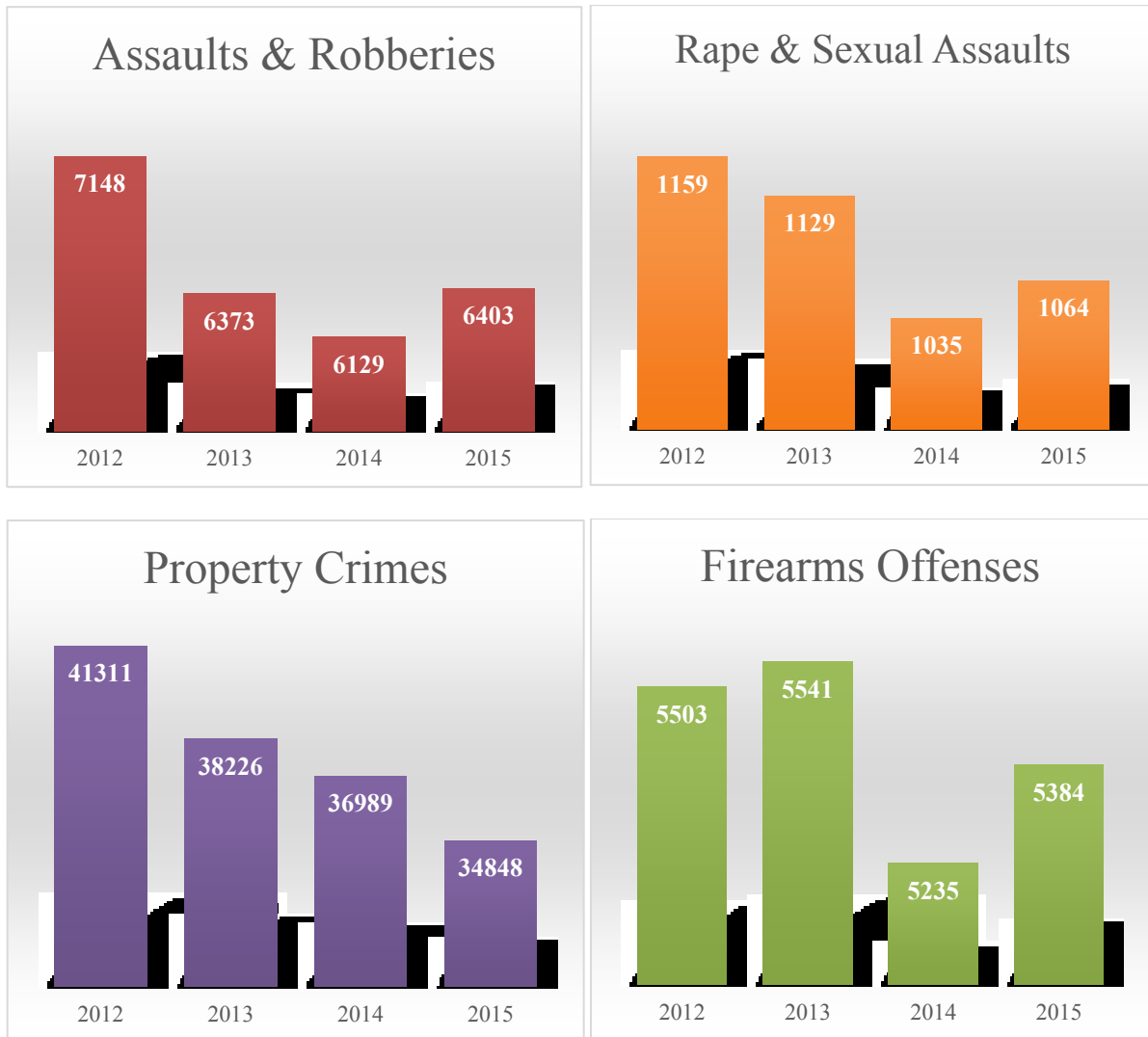
FBI QAS

The FBI's QAS describe the requirements that laboratories performing forensic DNA testing or utilizing the Combined DNA Index System (CODIS) shall follow to ensure the quality and integrity of the data generated by the laboratory.

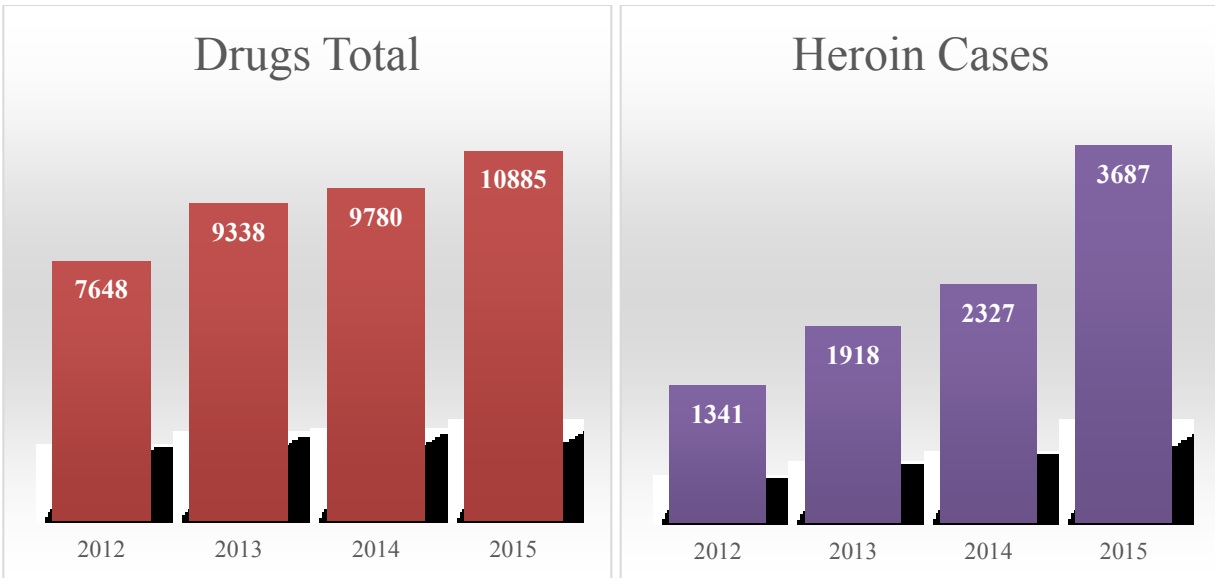
The DFS became compliant with the FBI QAS in 1997. The present FBI QAS accreditation expires June 15, 2016.

Delaware Crime and Death Trends

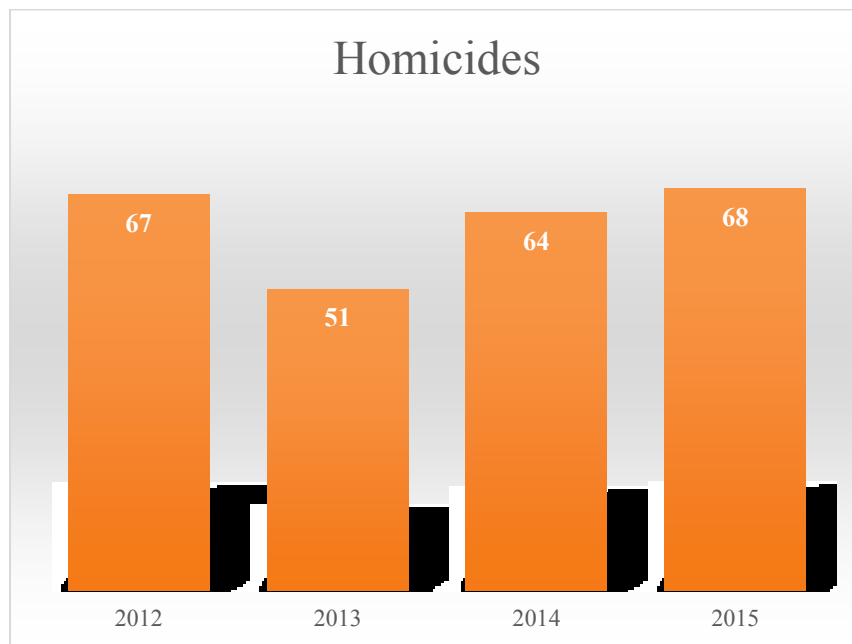
The DFS pathology and forensic science services are based on crimes committed and deaths occurring in the State of Delaware. Periodic evaluation of crime and death trends position the DFS to anticipate staffing and resource needs that will ensure timely and quality service.



The data on this page was provided by the Delaware Information and Analysis Center (DIAC).



The above data was provided by the Delaware Criminal Justice Information System (DELJIS).



Homicide data was tallied at the DFS.

Summary of Crime Trends from 2014 to 2015: Homicides, Rape and Sexual Assaults, Firearms Offenses, Total Drug Cases, Heroin Cases, and Assaults and Robberies increased, while Property Crimes declined.

Pathology

Overview

The duties of death investigation for the State of Delaware are performed by the team that makes up the Pathology Unit of the DFS. Statutory responsibilities of this unit include death investigation of non-natural and violent deaths, unattended deaths, death directly related to employment, drug-related deaths, in-custody deaths, and unexplained death in healthy adults and children.

At the end of 2014 the Pathology Unit had its inspection for accreditation with the National Association of Medical Examiners. The DFS was successful in achieving NAME accreditation until January 2019.



Judith Tobin Building, Southern Delaware's Pathology Unit, Georgetown, DE

Although the facilities met current accreditation standards, one major deficiency was the aging facility and lack of space, and as such, accreditation may not be achievable in the future. The Pathology Unit includes a main office, located in Wilmington, serving New Castle County,

and a smaller facility in Georgetown that serves Kent and Sussex Counties. The unit has four forensic pathologists that are comprised of the Chief Medical Examiner, Deputy Chief Medical Examiner, and two Assistant Medical Examiners. The Assistant Medical Examiner assigned to the Georgetown facility retired in December 2015. A replacement candidate is expected for potential hire in June 2016. The two offices combined have a total of 22 full-time and seasonal employees. The Pathology Unit saw the addition of three new full-time and seasonal forensic investigators during the past year, bringing it to a total of 11 investigators to cover the state. The addition of new talent has greatly improved unit efficiency and scene response time. The team is responsible for investigating, examining, documenting, reporting, and safeguarding information regarding approximately 1900 reports of death annually. This includes over 900 examinations. In addition to the 2900 requests for cremations on an annual basis, the unit also receives in excess of 900 requests for records from various individuals and organizations such as next of kin, insurance companies, the DOJ, police and law enforcement, and other state, local, and federal agencies.

Additional Duties and Outreach

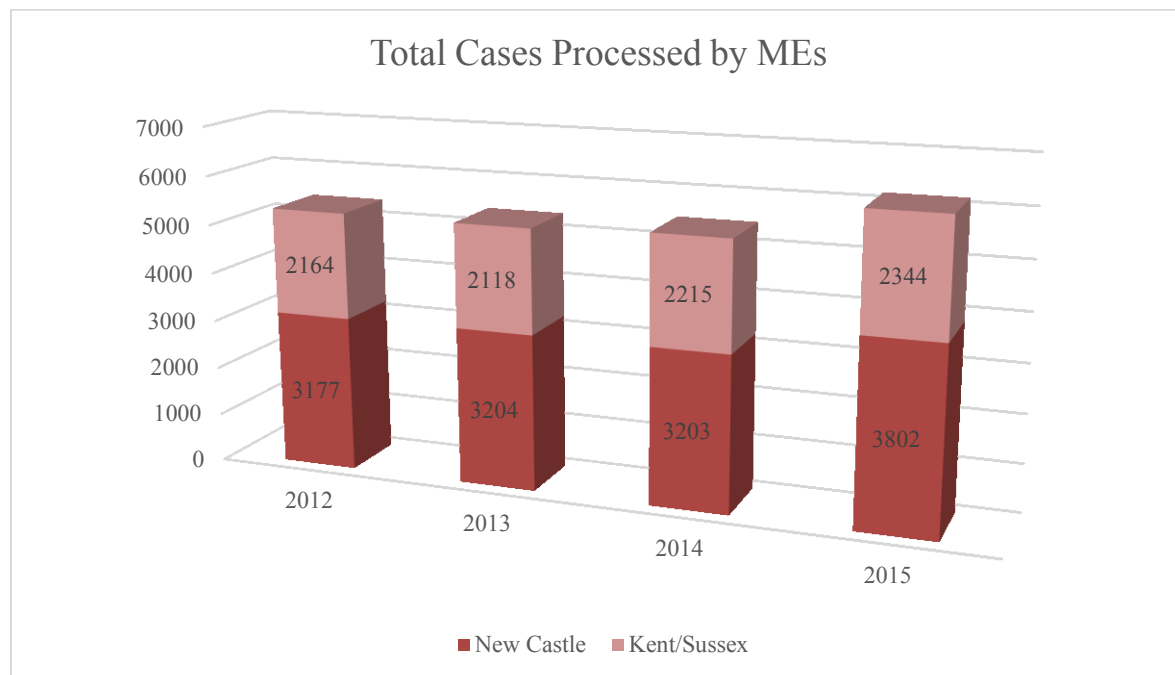
Along with the regular aforementioned duties, the staff is involved with a number of other endeavors related to its mission. For example, the Pathology Unit is a critical player in mass fatality planning and state child death review teams. Representatives also participate in educational outreach programs such as training residents from the University of Pennsylvania's Department of Pathology, providing lectures to trainee laboratory technicians at University of Delaware, site visits from police recruits, and presenting at local conferences held by the Delaware State Police (DSP). Unit employees are members of and/or hold certifications with professional associations such as the American Board of Pathology, the American Board of Medicolegal Death Investigators, NAME, and the Disaster Mortuary Operational Response Team (DMORT). Additionally, they hold adjunct faculty appointments with the University of Pennsylvania and Drexel University.

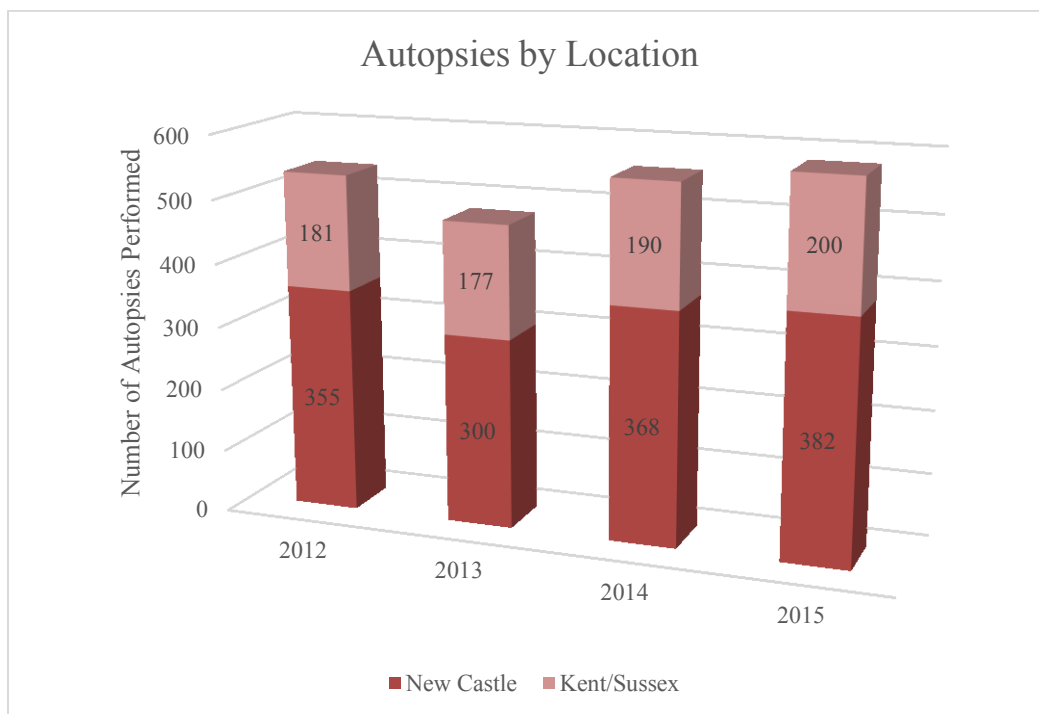
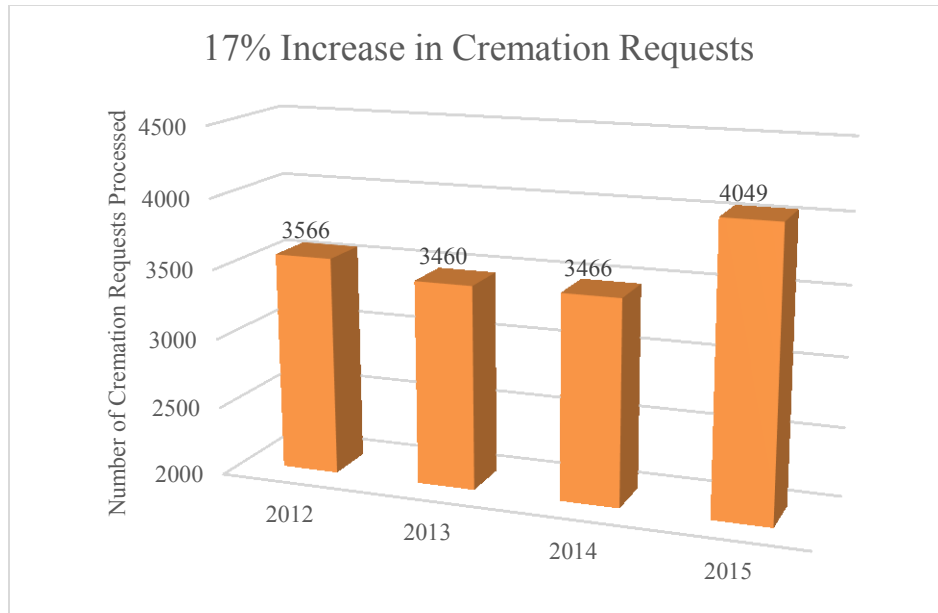
Partners

Our office cannot function without support from other organizations within the state. The list is long but does include the DHSS, all branches of law enforcement, funeral homes and the Funeral Directors Association, the Christiana Care Health System, and the Nemours/Alfred I. duPont Hospital for Children.

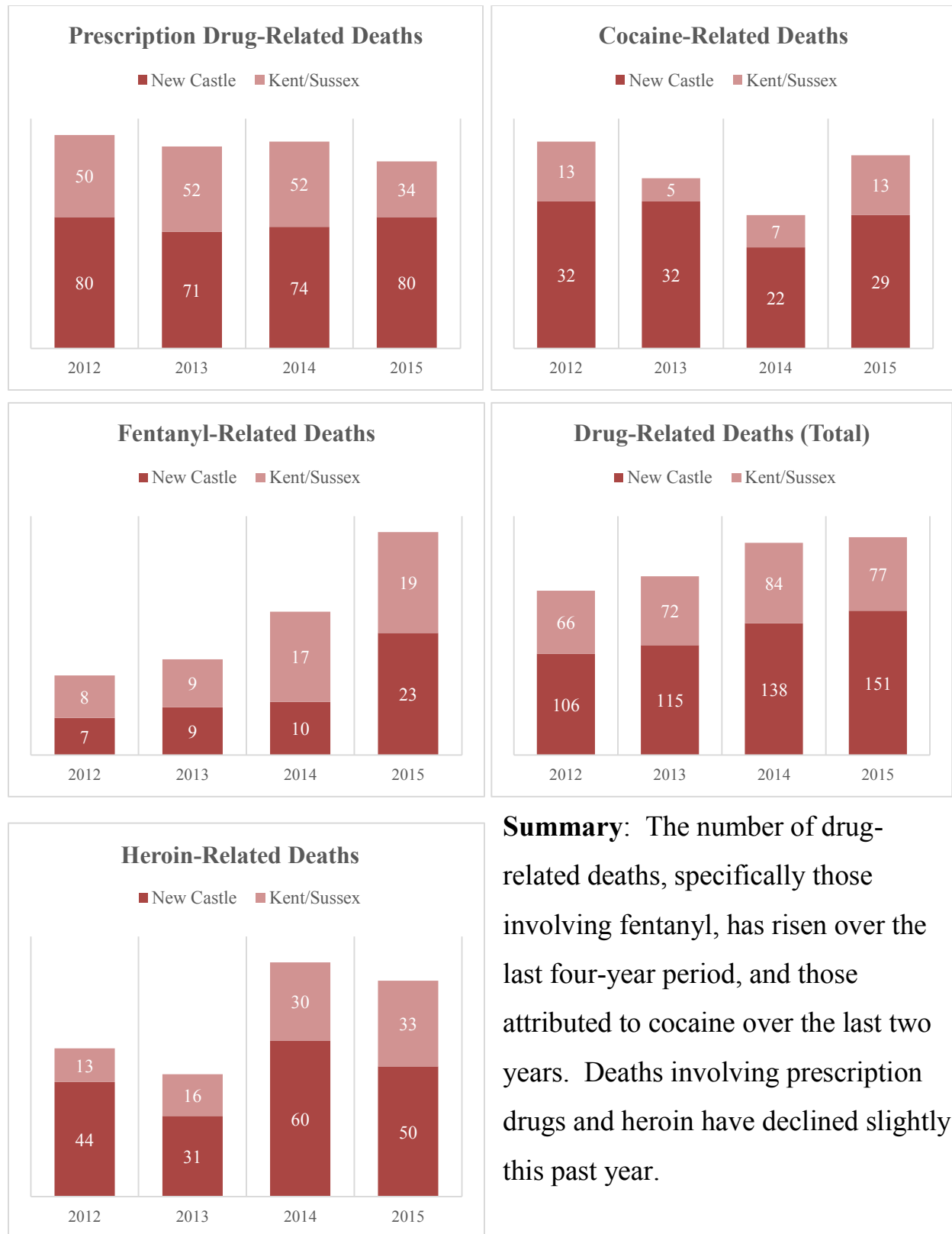
Data

Cases Reviewed

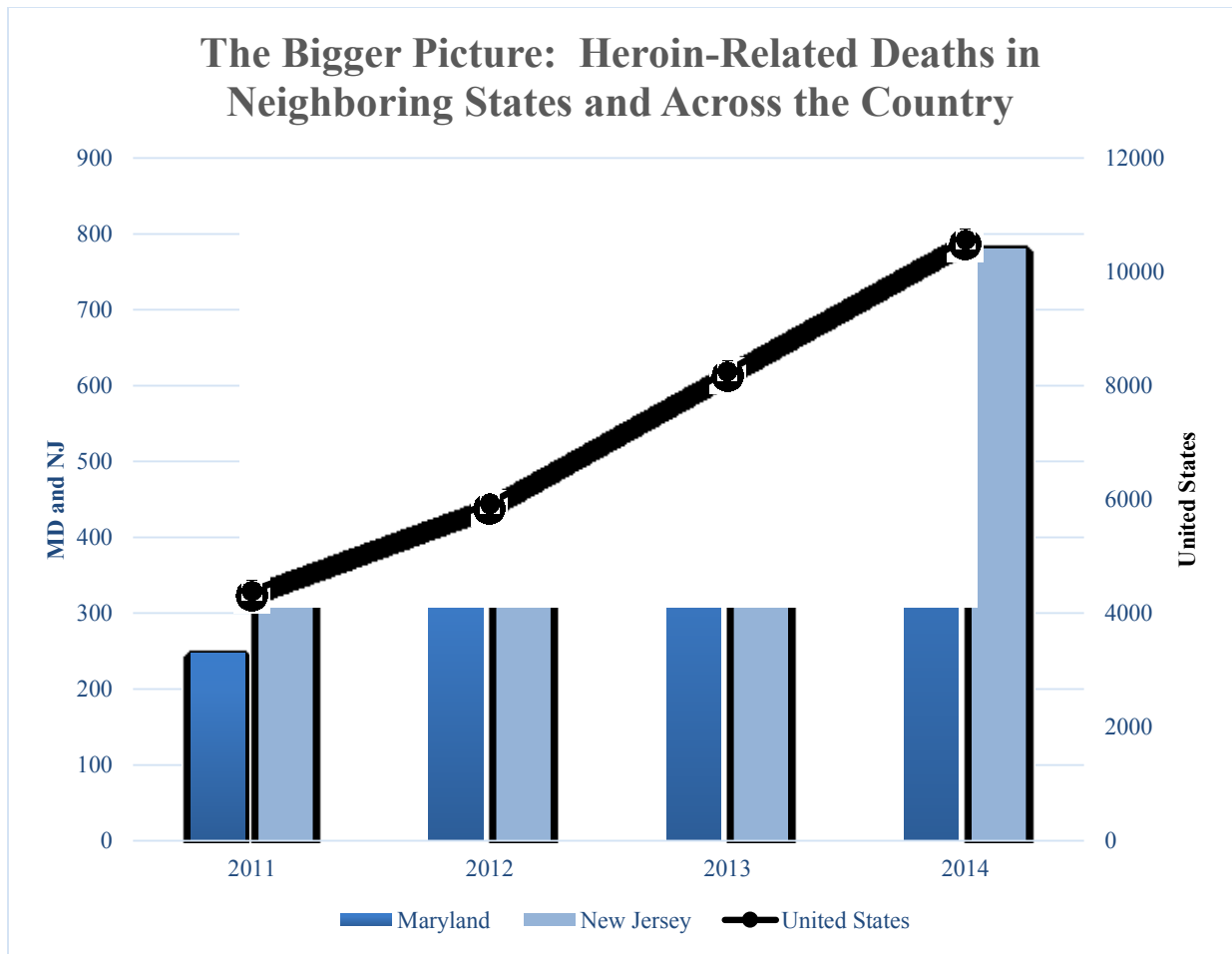




Summary: The total number of cases processed by the MEs, as well as the number of autopsies and cremations, rose over the last three years.

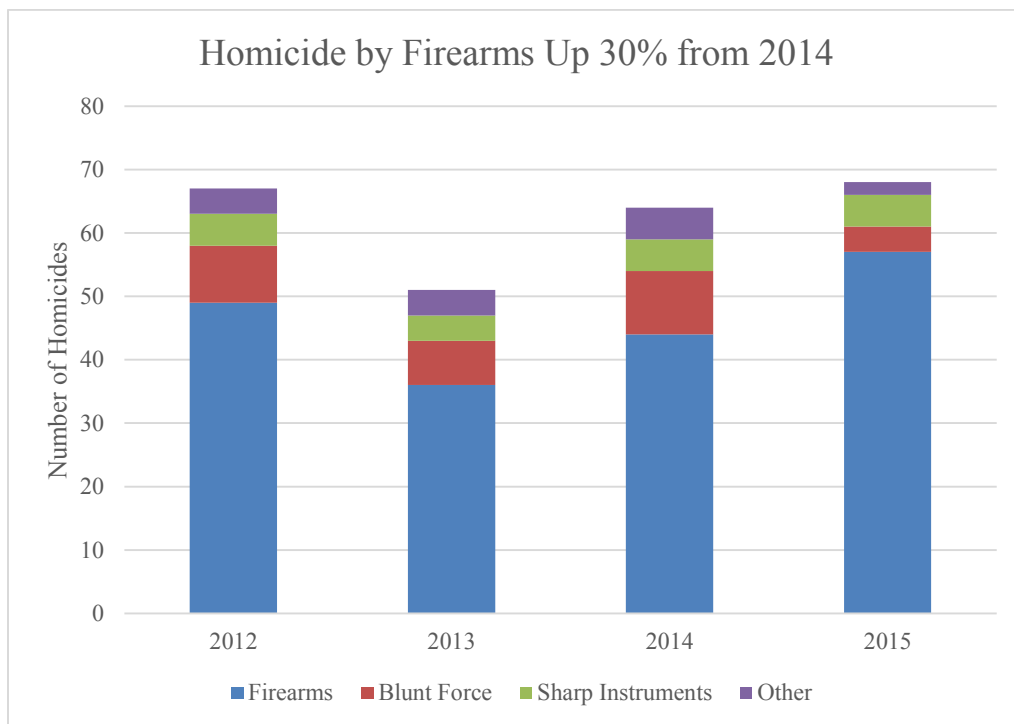
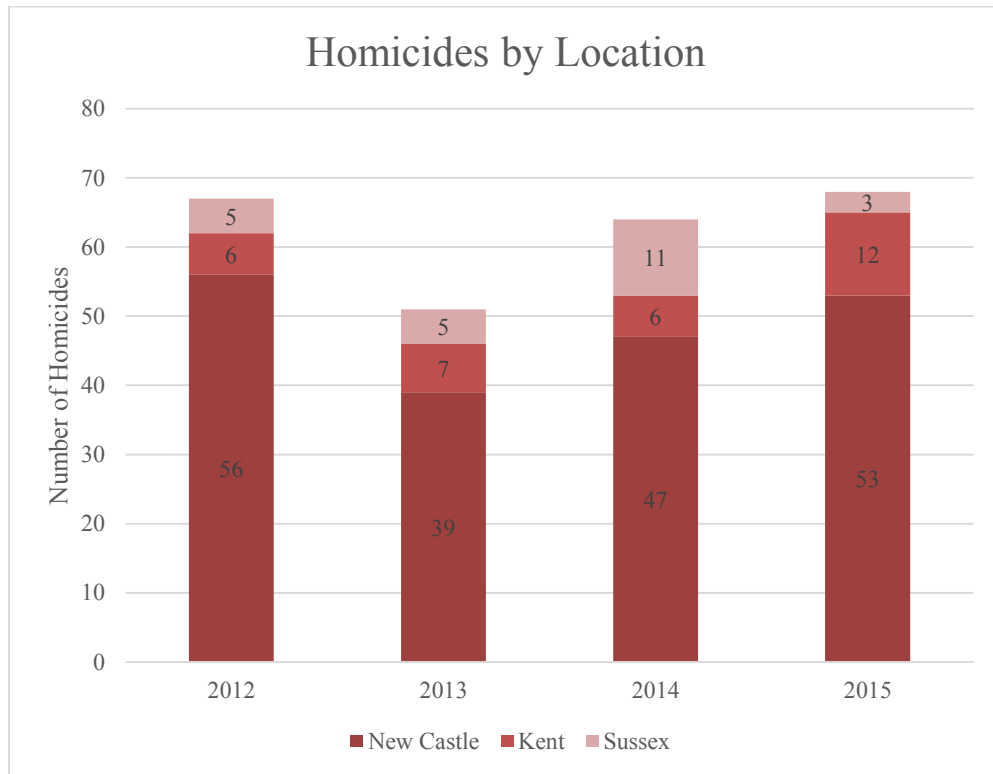


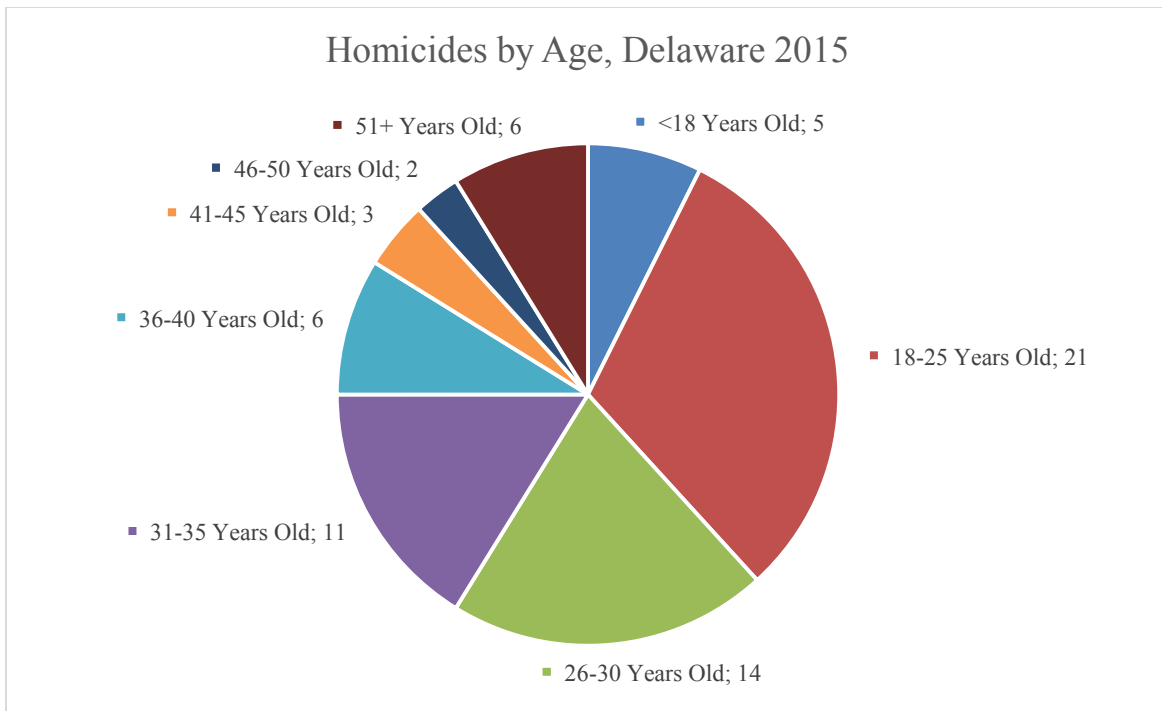
Summary: The number of drug-related deaths, specifically those involving fentanyl, has risen over the last four-year period, and those attributed to cocaine over the last two years. Deaths involving prescription drugs and heroin have declined slightly this past year.



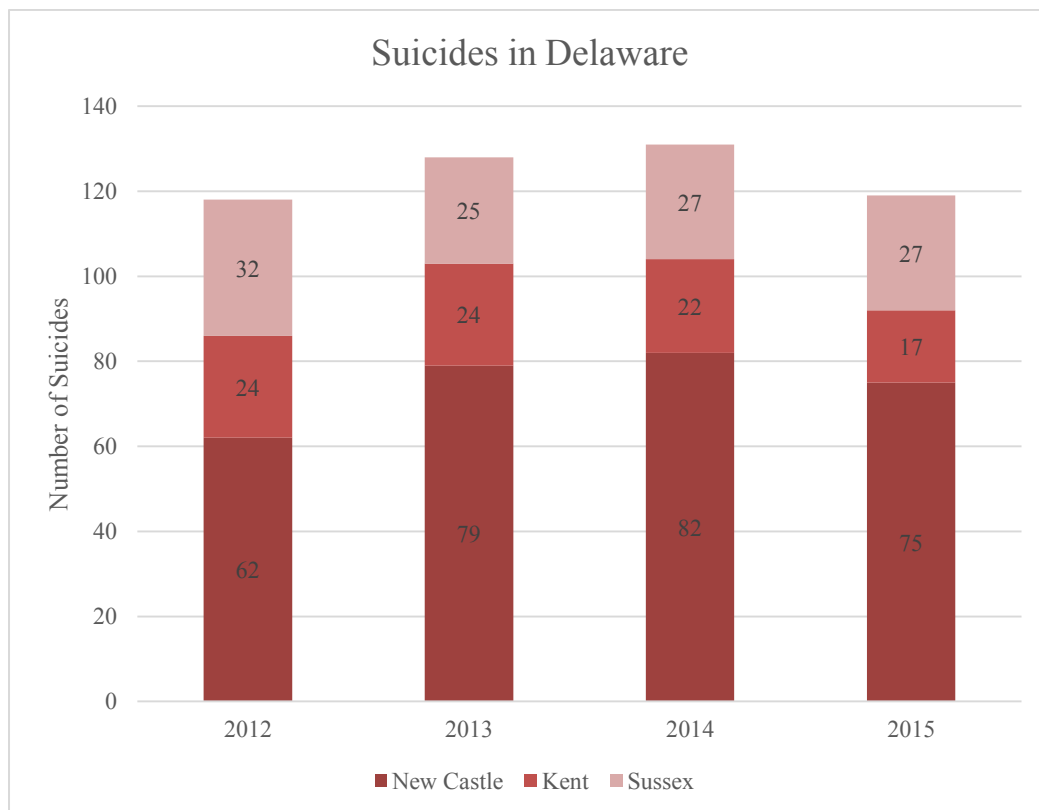
Summary: The dramatic increase in heroin-related deaths has plagued communities nationally, as well as those states surrounding Delaware. In 2013 and 2014, Delaware's rise in heroin-related deaths was consistent with national and local trends. While there was an 8% decrease in 2015, when considering other opioid-related deaths, specifically those attributed to fentanyl along with heroin, Delaware's rates continued to incline.

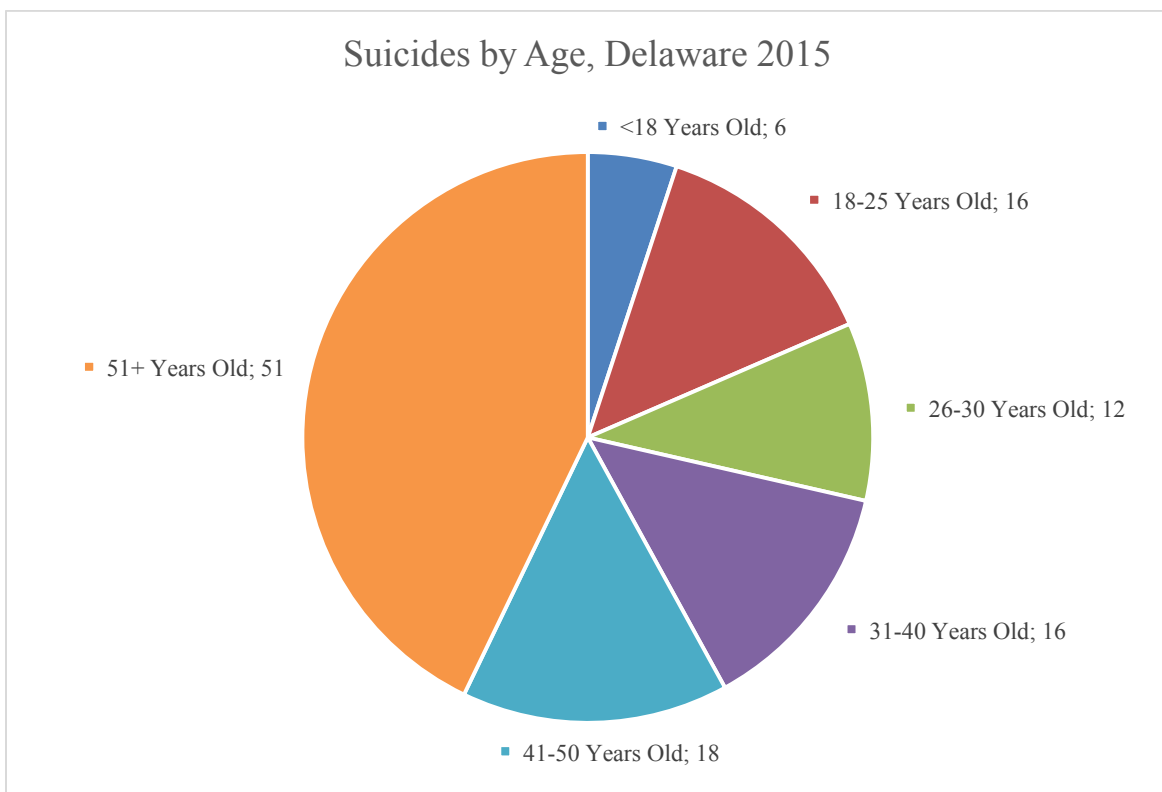
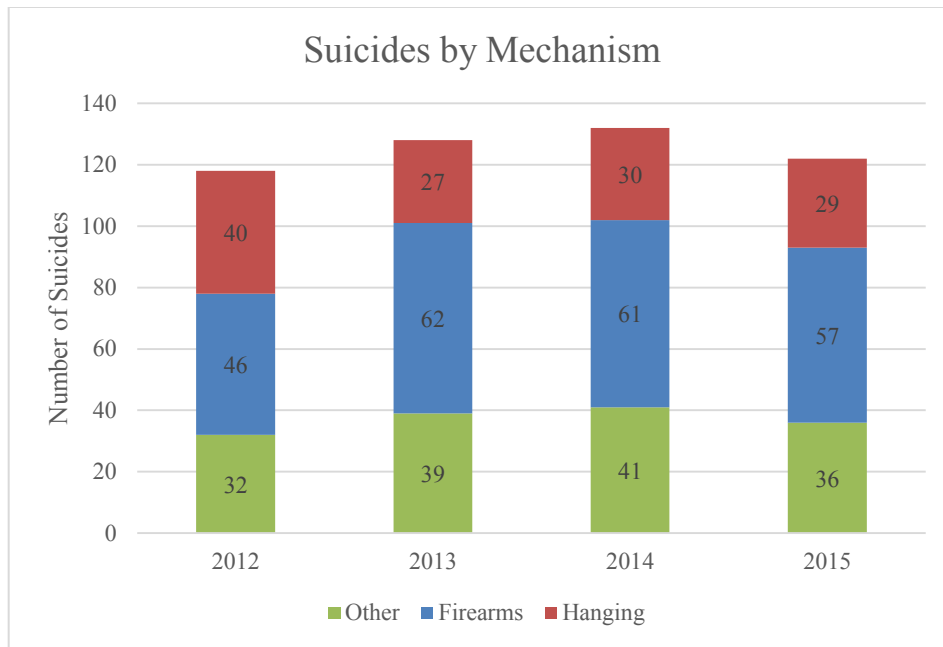
Homicides:





Suicides:





Summary: Homicides have increased over the last two years, while the number of suicides declined this past year.

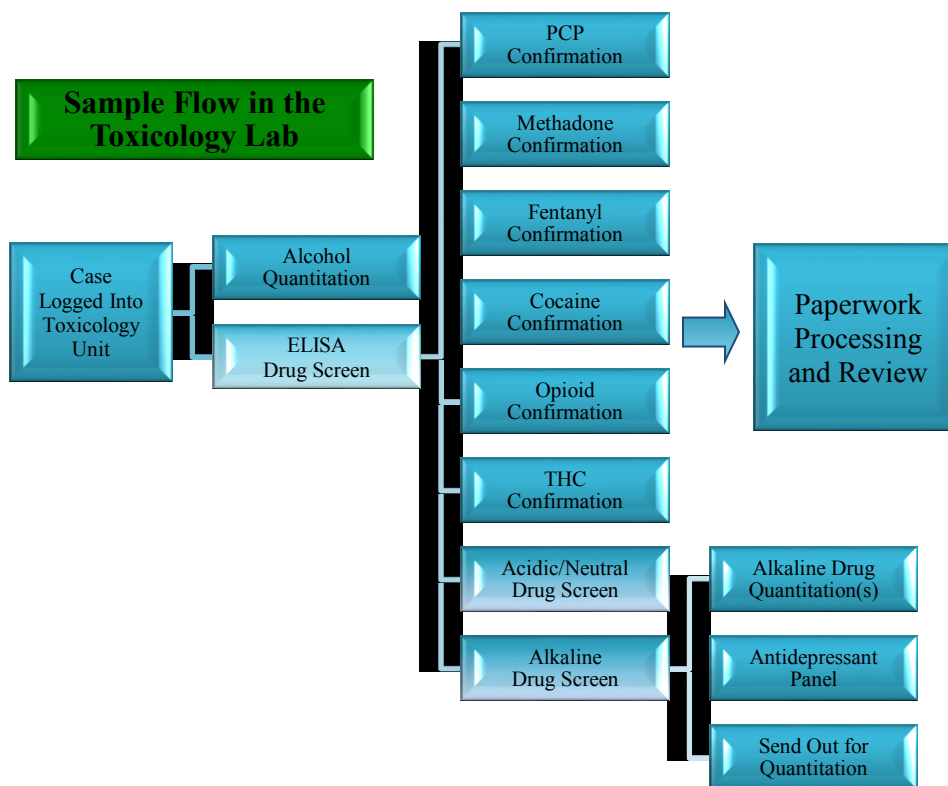
Toxicology

Overview

The Toxicology Unit of the DFS handles both postmortem and Driving Under the Influence (DUI) cases. The unit is comprised of a staff of eight positions: the Chief Forensic Toxicologist, a Laboratory Supervisor, four Analytical Chemists, and two Laboratory Technicians (one full-time and one part-time). Most cases (including all DUIs) begin with a preliminary ELISA (Enzyme-linked Immunosorbent Assay) Drug Screen, which tests qualitatively for the following drugs/drug classes: Benzodiazepines, Cocaine, Opiates, Phencyclidine, Carisoprodol, Methadone, Amphetamine, Methamphetamine, Barbiturates, Cannabinoids, Oxycodone, and Fentanyl. Positives from this screen are entered for additional confirmatory testing. A Special Testing ELISA panel is also available, which includes Acetaminophen and Salicylates.

The Toxicology Unit has 11 confirmatory procedures for the following drug classes/drugs (and their metabolites), which provide quantitation (concentrations or amounts of drugs): Antidepressant (ADP),

Cannabinoid, Cocaine, Fentanyl, Methadone, Opioid, Phencyclidine, and Alkaline Drugs (Benzodiazepine, Cyclobenzaprine, Diphenhydramine, and Tramadol). All confirmatory procedures utilize Gas Chromatography-Mass Spectrometry (GC-MS) except the ADP method, which utilizes Liquid Chromatography-MS/MS (LC-MS/MS).

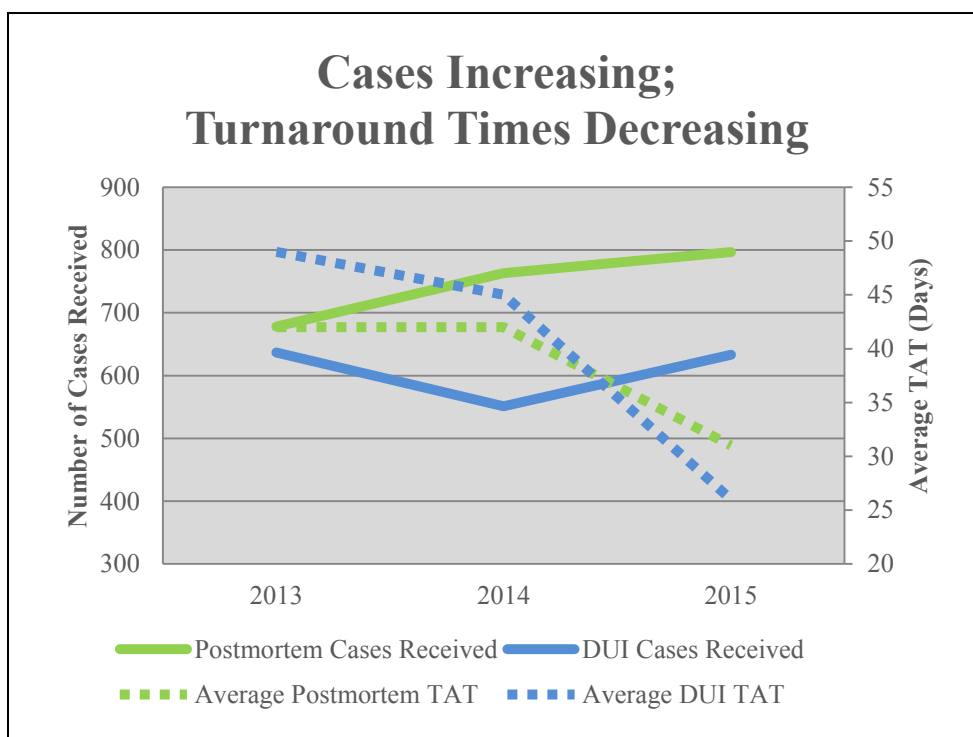


In addition to the ELISA Drug Screen, the Toxicology Unit has two confirmatory (but qualitative) drug screens. The Alkaline Drug Screen procedure covers approximately 200 different compounds, and the Acidic/Neutral Drug Screen covers another approximate 20 compounds. Alcohol/Volatiles Analysis using Gas Chromatography with Flame Ionization Detection (GC-FID) is another routine procedure used by the unit. In addition to ethanol, this procedure provides quantitation of acetone, isopropanol, and methanol and qualitative identification of acetaldehyde and 1,1-difluoroethane.

Improvements and Changes in 2015

The Toxicology Unit was very productive and dramatically enhanced efficiencies in 2015. Despite increases in both postmortem (+4%) and DUI/other (+15%) caseloads over the year, the unit's turnaround times (TATs)

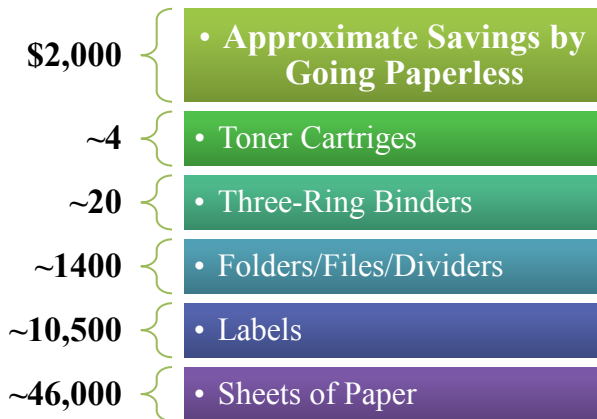
improved/decreased for both—by -26% for postmortem and by -42% for DUI/other. At the start of 2015, the team transitioned to a totally paperless system (for all case folders, batch packets, and laboratory logs). While a major adjustment initially,



the new paperless process was fully embraced by all and continues to be improved. As an example, in February, headers were added in standard format to include not only page numbering and batch ID but also changes to reporting limits to facilitate proper reporting. The Reviewer's Checklists were also updated to be more specific. This ensures that all checks are being done, and all batches now require both an initial *and* final review, along with a case certifier who conducts the final sign-out in the Forensic Advantage (FA) Forensic Laboratory Information Management System (FLIMS). As is clearly demonstrated with reduced unit TATs, the new paperless system has proven to be much more efficient. It should also be noted that the shorter TATs were attained with two fewer positions - an Administrative Specialist and a part-time Analytical Chemist.

To enable implementation of the paperless process, a Case Progress Log was added to the Toxicology Analysis Log, along with tabs for postmortem and DUI/other case information. These additional tabs allow for easier searching, replacing the Extended Storage and Homicide binder. The unit purchased two Nikon cameras in January for photographing evidence and evidence seals. These images are now included in the electronic case files/discovery packets.

These electronic case files/discovery packets are automatically available to DOJ and some police agencies



through FLIMS/FA Web. These packets include all raw data, which was previously unavailable. Furthermore, as the data is automatically uploaded to FA Web along with the final toxicology report and chain-of-custody report, requests for this information have been largely eliminated.

The laboratory put a focus on safety in April with all Toxicology Unit personnel undergoing training on compressed gas cylinder safety and bloodborne

pathogens. The gas tank room was also cleaned and organized, now satisfying the safety findings cited in the Andrews Report.

During the unit's annual document review, the *Quality Assurance and Quality Control* policy was updated to include a "Training Program" section and to limit those in the chain of custody for DUI/other cases by having the Analytical Chemist running ELISA also perform the logins.

In September, improvements were made to the *Alcohol/Volatiles Analysis by Headspace GC-FID* standard operating procedure that now enables the reviewer to readily view responses and relative retention times. Additionally, a new dishwasher was installed that saves technician time and enhances sanitation, and full backups were created of instrument computers.

The Toxicology Unit had assigned an Analytical Chemist to a research-and-development project of developing a new benzodiazepine and Z-drug panel on LC-MS/MS. Currently, the unit is only able to quantitate three benzodiazepine drugs and no Z-drugs. The goal is to create a new panel that would cover 18 benzodiazepines and three Z-drugs, and by doing so, increase the unit's ability to identify additional drug compounds. This enhancement would be cost-saving in the long term as it would alleviate the need to replace an aging GC-MS instrument. Funding will be sought in 2016 to accomplish further method development and validation of the unit's LC-MS/MS instrument.

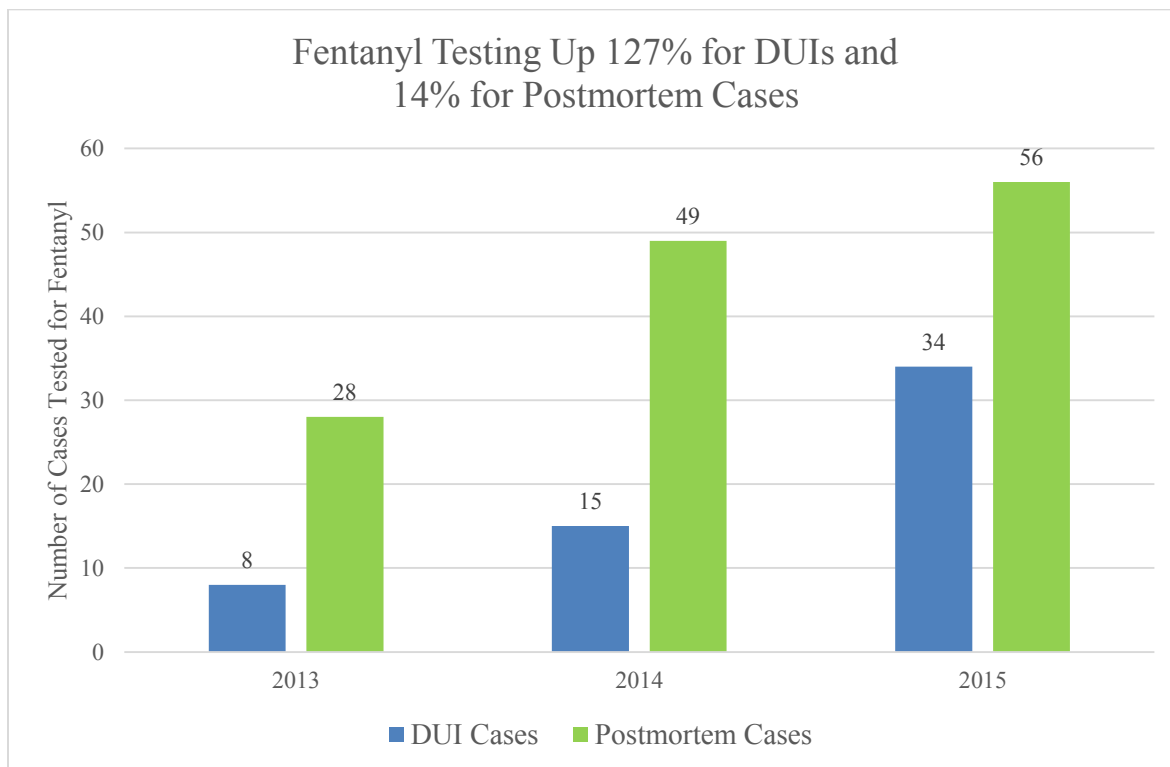
PLANS FOR IMPROVED PRELIMINARY SCREENING AND ADDITIONAL ACCREDITATION IN TOXICOLOGY

December was a productive month, as the Toxicology Unit had two major accomplishments that were in process for a while. First, a contract with Randox Toxicology Ltd was approved, and second, the unit's 366-page application for laboratory accreditation by the American Board of Forensic Toxicology (ABFT) was submitted. The latter was a recommendation by Andrews International that the unit seek ABFT accreditation.

2016 promises to be a fulfilling year for the unit. Randox's biochip array technology (BAT) is cutting-edge. The team is hoping to begin validation with Randox sometime in April. By moving to Randox, the unit will be able to conduct preliminary screens for 21 drugs/drug classes versus 12 now, thereby improving productivity with nearly double the information in the same amount of time, using the same small amount of a case specimen. This will also accelerate movement to confirmatory procedures for many of the additional drugs/drug classes.

Following review of the application, an on-site inspection by ABFT will likely occur in April.

Data



DNA

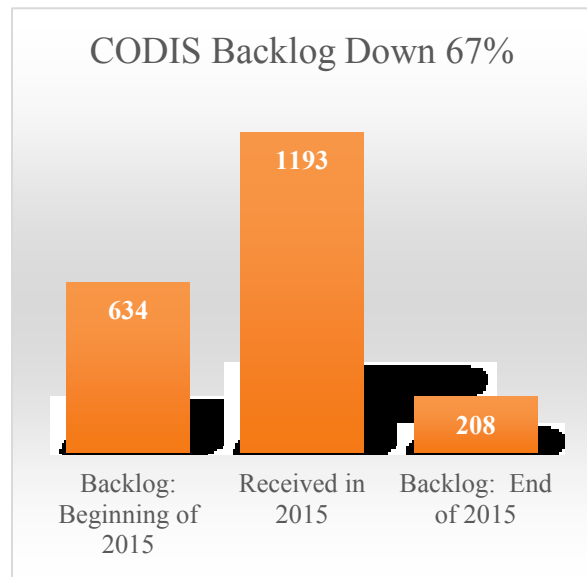
Overview

The DNA laboratory consists of two sections, the CODIS (COmbined DNA Index System) section and the Casework section. The CODIS section processes all of the convicted offender samples submitted to the laboratory from the Delaware State Police/State Bureau of Identification (DSP/SBI) and the Department of Corrections (DOC), and then uploads the DNA profiles generated into the National database. The Casework section examines evidence, conducts preliminary testing for body fluids, performs DNA testing, and interprets data derived from the tests to draw and support conclusions. The DNA profiles generated from processing casework may also be entered into the State and National databases.

CODIS

The backlog of convicted offender samples at the beginning of 2015 was approximately 634. During 2015, the CODIS section received an additional 1193 offender samples resulting in a **51%** increase in submissions of qualifying offenders from the previous year. Convicted offender samples were processed on a monthly basis, and by the end of the year, the backlog was 208 samples, all of which are scheduled to be processed during the first quarter of 2016. The TAT for uploading offender samples into the National database decreased **62%** over the last year, from an average of 215 days to an average of 82 days. In

2015, 1465 offender samples and 80 casework samples were uploaded into the State and National databases, resulting in **27** CODIS hits or “matches” (down from 37 last year).



Casework

At the onset of 2015, there were 120 cases carried over from the 2014 backlog, including those with suspects as well as unknown suspect cases. The DNA unit, in 2015, received 300 new case submissions and 62 subsequent submissions for a total of **362** submissions. The total number of submissions is a **49%** increase from the previous year. By the end of 2015, the backlog was 121.

There was a **35%** decrease in TATs for processing DNA cases from 2014 to 2015. One contributing factor was that sexual assault

and homicide cases were assigned within days, not months, from receipt of the evidence by the laboratory. The overall decrease in TATs occurred in spite of the fact that there were on average only **4.3** analysts on-board of the **six** approved positions or **72%** of the staffing level as compared to the previous year. This was

IMPROVING EFFICIENCY TO ENHANCE PRODUCTIVITY

The DNA laboratory devised and implemented “triage” protocols for prioritizing items of evidence submitted for DNA analysis. Law enforcement, in collaboration with DOJ prosecutors and in consultation with DNA analysts, select a prescribed number of items of evidence that would most likely exhibit viable DNA transfers. In enacting such a process, the laboratory can process more cases in less time, yet provide critical DNA evidence for prosecutions. In addition, the DNA laboratory developed and disseminated guidance to law enforcement for processing firearms, shell casings, and other items of evidence to enable statewide consistency in processing the evidence for the presence of “touch” or low copy DNA. Both initiatives were in concurrence with and supported by DOJ.

primarily due to a resignation and reassignments. While there was a decrease in DNA TATs from 2014, it required 120 days from the date that the evidence was submitted to issuance of the final report. The desirable TAT, as expressed by prosecutors on behalf of the courts, is a 60-day TAT. **Four** additional DNA analysts will be required to achieve this objective.

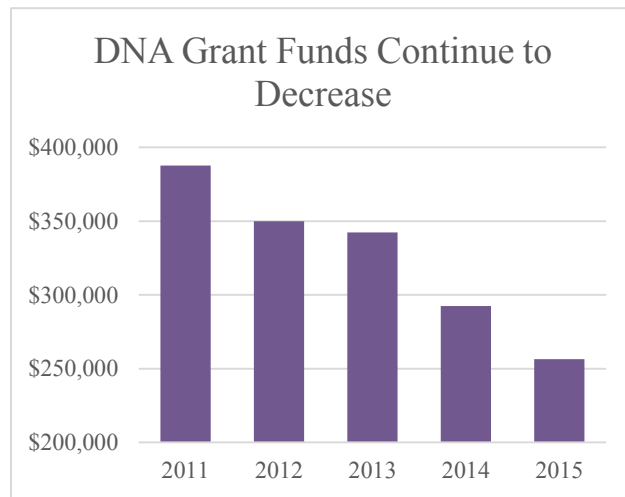
The casual/seasonal Laboratory Technician position was also vacant for almost half of the year. Two of the vacant analyst positions were filled, and their training curriculum is expected to be completed during the first quarter of 2016.

Staffing, Funding, Instrumentation, and Validation

In addition to processing cases, DNA Analysts, supervisors, and Analyst trainees are now responsible for quality control duties that were previously performed by a Laboratory Technician. These duties include but are not limited to making reagents, conducting quality control checks of critical reagents, performing monthly and quarterly QC checks of critical instruments, ordering supplies, as well as daily laboratory maintenance. These duties require time that an Analyst, supervisor, or an Analyst trainee would otherwise be dedicating to casework, training, or validations.

The Casework Manager continues to handle the DNA Backlog Reduction Grants. In September, the Fiscal Year (FY) 2013 DNA Backlog Reduction Grant concluded with the closeout documentation forwarded to the National Institute of Justice by the December 31, 2015 due date. The laboratory is

currently managing the DNA Backlog Reduction Grant for FY2014, which closes on September 30, 2016. In addition, this past October, the DNA Unit was awarded a DNA Backlog Reduction Grant for FY2015.



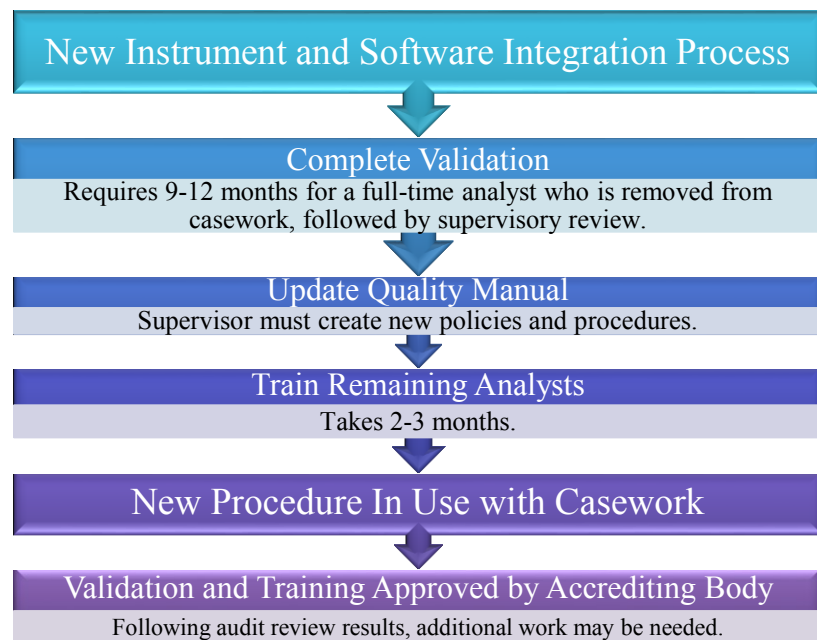
Grant funds have allowed the DNA Unit to remain current with innovative advancements and improvements in the field of forensic DNA testing. It should be noted that the federal grant funds have been on a decline from \$342,324 in FY2013, to \$ 292,368 in FY2014, to \$256,403 in FY2015, for reductions of 14.6% and 12%, respectively the past two years. Despite these reductions, the benefits have been invaluable. With the DNA FY2013 funds, the laboratory was

able to purchase new freezers for sample storage, new computers, reagents for validations, reagents for casework and convicted offender samples, six new thermal cycling instruments, and five licenses for Armed Xpert software for genetic typing analytical work. All have been critical in ensuring integrity in the analytical process and improving efficiencies in operations.

Currently, the laboratory has eight thermal cycling instruments that are over ten years old and are models that are no longer available. Replacing these instruments is a necessity. To remain current with other laboratories in the technologies associated with typing mixed samples, the DNA laboratory is also in need

of Armed Xpert probabilistic genotyping software for statistical analysis of DNA samples having more than one contributor. Laboratories worldwide have moved to this analytical methodology for typing mixed samples.

Every newly acquired thermal cyclor instrument and each piece of licensed Armed Xpert software must be validated, and policies must be enacted before



the laboratory staff can be afforded training and the instruments and software can be approved for use in casework.

Validation studies are ongoing in the DNA laboratory using a new instrument system to fulfill this requirement. It should be noted that while validation is required and a critical part of forensic DNA work, at this time, the DNA laboratory does not have sufficient personnel to perform these duties without drawing from casework resources. At present, validation responsibilities rest with an Analyst in-training whose training cycle for casework has been delayed. Validation studies and training are a requirement for laboratory accreditation and consume an extraordinary amount of DNA Unit time.

In 2015, there were mandated changes in DNA testing requirements nationwide. The FBI Laboratory has required all laboratories to upload 20 DNA markers in the National CODIS database, commencing January 1, 2017. Currently, the requirement is to enter only 13 DNA markers.

The following chart provides comparative analysis for FY2014 and FY2015:

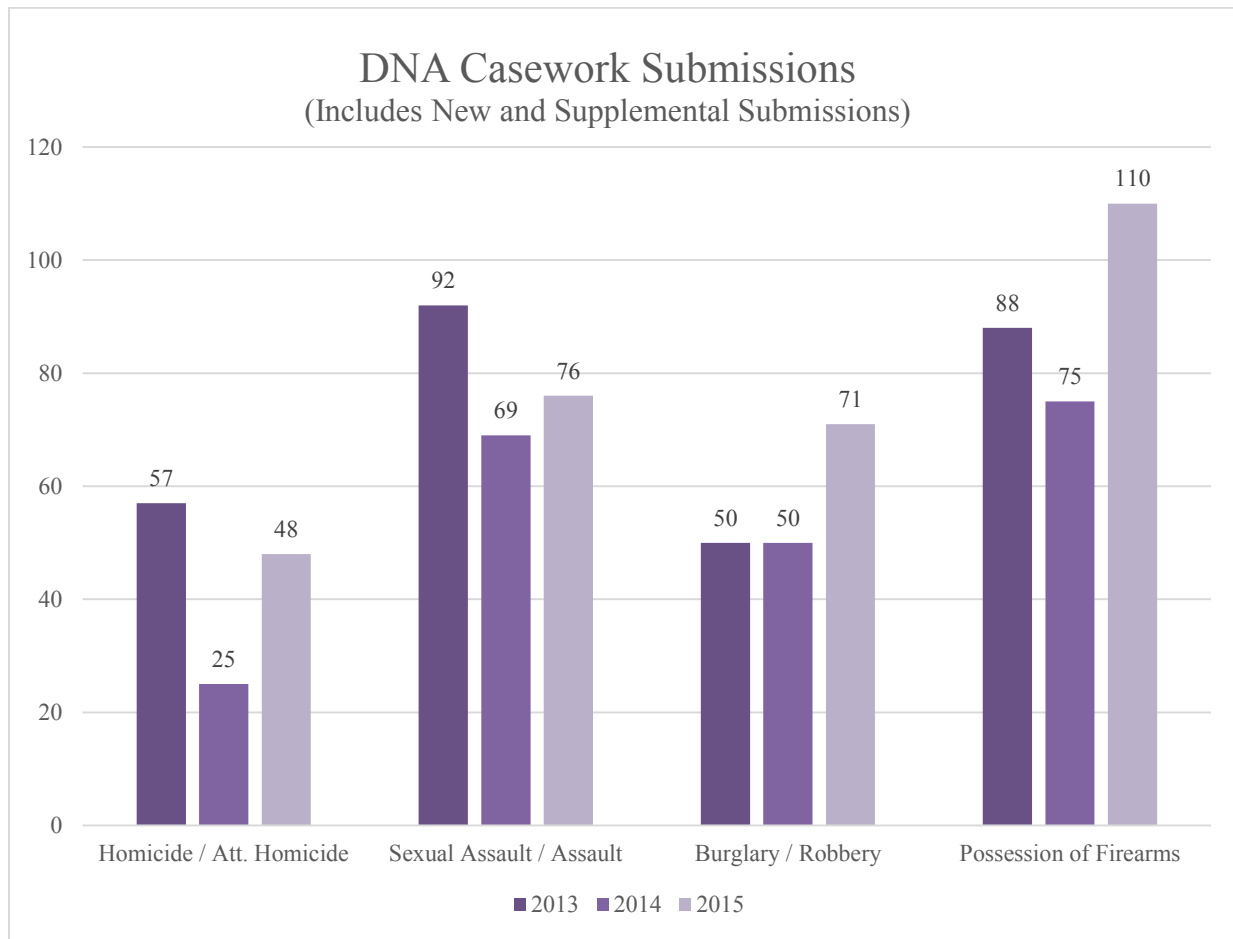
	FY2014	FY2015
Case Completions:	231	361 (+56%)
TAT (Submission to Completion):	185.1 Calendar Days	120.6 Calendar Days (-35%) *
Case Submissions:	243	362 (+49%)
Staffing:	6	4.3 (-28%)
Backlog:	120	121

*Does not include (20) 2013 no-suspect cases where there was no prosecution.

The DNA Unit Requires Additional Staff to Meet Desired TATs

During 2015, the DNA laboratory received 49% more cases than were submitted in 2014. The cases were completed in 35% less time with 28% less staff. The number of completed cases was 56% more than were completed in 2014 with a negligible change in the backlog from the previous year. The average TAT was an undesirable 120 calendar days. To achieve a TAT of 60 calendar days for completed processing of DNA cases would require an enhancement of **four** additional DNA Analysts.

Data



The table below provides a breakdown of the types of cases sent to the DNA laboratory during 2015.

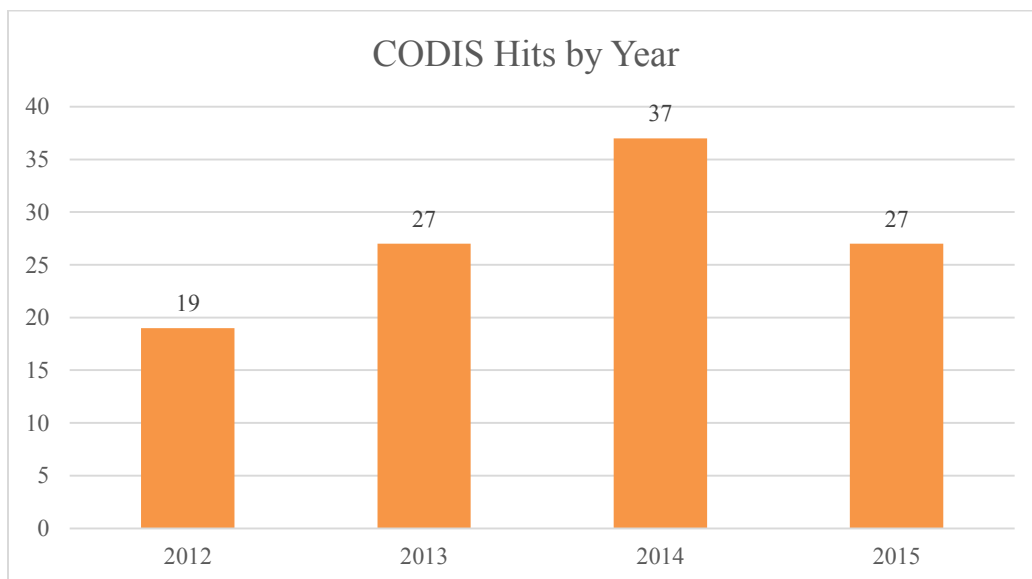
	New Submissions	Supplemental Submissions*
Homicide / Att. Homicide	31	17
Sexual Assault / Assault	64	12
Burglary / Robbery	58	13
Missing Person	1	0
Death Investigation	3	0
Miscellaneous	25	13
Possession of Firearms	103	7
Proficiency Tests	15	0

*Supplemental, or subsequent, submissions are defined as those cases requiring additional testing after a report has been issued, or those cases where a report was held in abeyance pending submission of additional evidence for testing.



One case can yield many samples for testing –
Number of Cases, Items, and Specimens Examined in 2015

CODIS Hits 2015		Type of Case
15		Burglary
2		Homicides
2		Home Invasions
2		Sexual Assaults
2		DE Offender hit to VA and MD cases
1		Criminal Trespass
1		Theft
1		Drug Trafficking
1		Robbery



Forensic Chemistry Unit

Overview

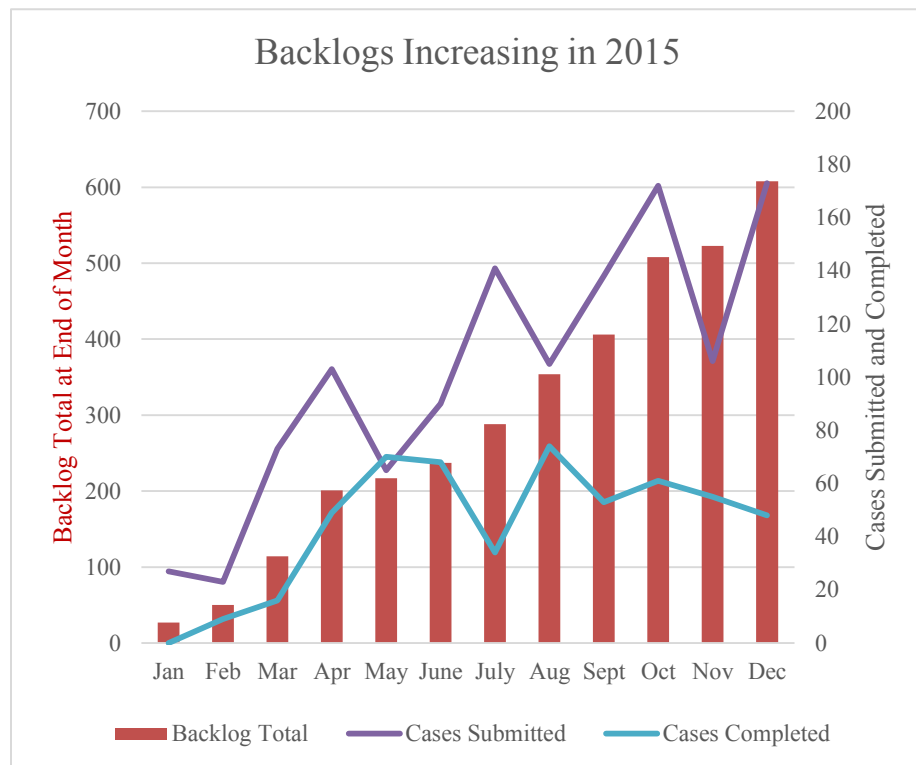
The Forensic Chemistry Unit (FCU) is comprised of two subunits, the Fire Debris subunit, which examines evidence for the presence of an accelerant in potential arson cases, and the Controlled Substances (CS) unit, which analyzes evidence for the presence of controlled substances.

The CS unit was closed for analytical operations for the better part of 2014. Leading up to, throughout, and immediately following the closing of the CS unit, there were many significant developments, including a number of administrative and personnel changes that had a major impact on CS operations, as chronicled below:

- **January 14, 2014:** CS evidence discovered missing during a drug prosecution.
- **February 20, 2014:** CS lab ceased operations. Drug evidence outsourced to a private lab for testing.
- **May 28, 2014:** FCU Manager and former Forensic Evidence Specialist (FES) arrested and charged with theft of drug evidence.
- **June 14, 2014:** Chemist hired from within OCME office for FCU. Certified to process cases March 2, 2015.
- **July 4, 2014:** OCME Forensic Science Laboratory was re-assigned from DHSS to DSHS and renamed the Division of Forensic Science.
- **September 14, 2014:** Chemist resigned.
- **October 2, 2014:** CS lab operations opened to process Wilmington PD (WPD) cases ONLY.
- **March 3, 2015:** CS lab operations opened to process WPD and DSP cases ONLY.
- **March 13, 2015:** Chemist hired from within the DFS for FCU. Certified to process cases July 10, 2015.
- **April 1, 2015:** Chemist resigned.
- **May 8, 2015:** FES employee resigned.
- **May 8, 2015:** CS lab operations opened to all PDs except the New Castle County PD (NCCPD).
- **June 29, 2015:** Chemist hired. Certified to process cases January 21, 2016.
- **July 10, 2015:** Chemist hired with an anticipated certification in February 2016.
- **September 8, 2015:** Two FES employees hired.
- **October 7, 2015:** Chemist resigned.
- **January 20, 2016:** Chemist resigned.
- **January 22 & 29, 2016:** Chemist interviews conducted to fill vacancies.

Controlled Substances Case Submissions and Backlog Analysis

During 2015, case submissions escalated incrementally each month, as the number of contributing police departments (PDs) expanded from just the WPD, to the WPD and DSP, and presently to all of the PDs except the NCCPD. Consequently, the number of backlogged cases also grew appreciably throughout the year with the number of case submissions far



exceeding the number processed. Specifically, there were **1216** drug cases submitted during the year, as compared to **537** cases that were completed, for a **44%** completion rate. After eliminating **172** “Cease Tested” cases, **58%** of the submitted cases were addressed, leaving **42%** of the submissions in backlog.

Despite management efforts to identify and address priority cases, including daily monitoring of chemists and regular communication with prosecutors, backlogs continued to mount. Recent legislation regarding drug prosecutions in the Court of Common Pleas (CCP) has accelerated TAT requirements for the courts in these cases, and as such, further exacerbated the drug case backlog problem.

In the near future, another aggravating factor that will dramatically increase the FCU caseload is the influx of the NCCPD cases as the department is brought back online with the submission of drug evidence. The NCCPD conducted **1126** drug investigations during 2015. To put this in a statewide perspective, based on DELJIS (NIBRS) data, the NCCPD was responsible for **24.8%** of the total state drug case initiations in 2015. Once the NCCPD begins submitting drug evidence to the DFS, additional personnel and resources will be required to ensure that it is processed in timeframes acceptable to the courts.

Staffing

Staffing Analysis:

Cases:

- **1216** CS cases submitted to DFS in 2015
- **537** CS cases completed
- **173** CS cases “cease tested”
- **507** CS cases backlogged

Chemists:

- **4.8** chemists processed CS the 537 cases in 2015
- **112** cases processed per chemist in 2015
- **4.5** additional chemists or **9.3** total chemists were required to complete all CS submissions

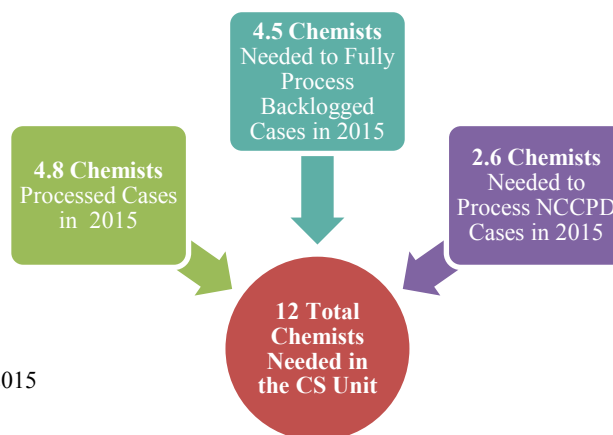
NCCPD cases:

- **290** cases submitted to private lab for testing
- **2.6** chemists required to test the 290 cases @ 112 cases per chemist

Total chemists required to address the state CS caseload to include NCCPD:

- **12** total chemists ($9.33 + 2.6$) will be required to address the state’s drug cases in 2016 * with a 60 day TAT, and the CCP caseload on a timely basis.
- **5** additional chemists (**6** if an additional chemist is provided for anticipated future growth) are needed in addition to the 6 current fulltime and 1 casual seasonal chemist.

* As the FCU was only partially operational during 2014, an annual trend analysis to project case submissions for 2016 could not be performed. However, DELJIS statewide drug reporting from 2012 through 2015 reflected a steady incline in case generations each successive year, specifically an 11.3% increase from 2014 to 2015 (9780 cases to 10,885 cases). If case generations continue to increase at this rate, 1353 cases are projected for submission to FCU during 2016, for an increase of 137. If realized, an additional chemist position would be needed.



The funded staffing level of the FCU is currently two manager-level positions, six full-time and one part-time chemist positions for CS, and one full-time chemist position for FD. The two FES positions, which handle evidence intake for both the FCU and DNA Unit, also fall under the FCU. As indicated above, FCU understaffing and poor performance of a few contributed in large part to the drug backlog problem. Appropriate corrective action has and continues to be taken to ensure productive employee performance. During 2015, while the FCU operated on average with **4.8** of the **seven** appropriated Analytical Chemist (AC) positions, or at a **68%** staffing level, the number of backlogged cases grew substantially. In

discussion with DOJ prosecutors, representing expectations of the courts, an optimum TAT for drug cases was recommended at 60 calendar days. The average TAT timeframe for completed cases, along with those presently in the inventory of backlogged cases, far exceeded a 60-day TAT for all cases in 2015.

The benefits of using FCU chemists to test drug evidence cannot be overstated both logistically for accessibility to the departments and fiscally. During the six-month period from August 2015 through January 2016, **4.8** FCU chemists processed **6394** individual drug samples, that if submitted to a private lab for testing would have cost approximately **\$991K**, and when annualized, **\$1.98M** for a year. The combined annual salary of **4.8** chemists is less than \$288K. To further accentuate monumental savings associated with performing drug testing internally, a recently submitted **42K**-item heroin case was estimated at a cost of over **\$116K** if it were to be submitted to a private lab for testing. That is \$116K for **just for ONE case**, or to put it in a fiscal perspective, the approximate salaries of two chemists for an entire year.

To ensure integrity in the analytical process and accuracy of the reported results, strict standard operating procedures and security measures governing the handling, processing, documentation, and preservation of drug evidence were implemented, along with rigid chain-of-custody requirements and a three-tier review of all cases prior to release of reports. Implementation of these quality assurance procedures is a time-taking process and has further extended the TATs for drug cases.

There are presently two vacant chemist positions and a vacant Laboratory Manager I position in the FCU. Interviews of ten chemist applicants have been conducted, and three have been selected for hire. Once accepted, a minimum of six months will be required for training prior to the chemists being certified to process cases. Interviews for the Laboratory Manager I position will be conducted in March 2016.

Short and long-term remedial measures are being enacted to resolve the backlog issue. As indicated above, during 2015, the FCU processed **537** cases with **4.8** chemists or approximately **112** cases per analyst during the year. To achieve equilibrium, processing the same number of cases that were submitted would have required, at a minimum, **9.3** chemists. This calculation accounts for the cases that were cease tested and does not include cases that will be submitted by the NCCPD, nor does it allow for the 60 day TATs desired by the courts. A total of 12 chemists are necessary to process drug cases within acceptable timeframes.

To accommodate the requested enhancement in personnel, additional instrumentation is also needed to perform confirmatory testing of controlled substance cases. During 2015, three Gas Chromatograph/Mass Spectrometers (GC/MSs) were fully employed, sometimes operating around-the-clock. Despite regular and oftentimes continual use of the GCMSs, unavailability of

the current number of instruments prompted delays that contributed to the unit's backlog of cases. Ten cases awaiting GC/MS analysis is not uncommon. In 2015, with 4.8 chemists using 3 GC/MSs on a continuing basis, only 58% of the 1,216 case submissions were completed. At a minimum, 9.3 chemists were needed to test the entire submission inventory and at least **two** additional GC/MSs would have been required to process the entire caseload. **One** additional GC/MS, for a **total of six**, will be required once the NCCPD begins to submit cases to the FCU. In addition, acquisition of a Fourier Transform Infrared Spectrometer (FTIR) device was recently approved for the FCU to perform preliminary testing of controlled substance submissions. The FTIR will improve the unit's efficiency, replacing the dated time-consuming "color" testing procedures. To support the requested enhancement in chemist personnel, and the additional GC/MSs, **two** additional FTIRs will be needed to perform the first stage of the two step analytical process culminating with the confirmatory GC/MS final stage.

In the short term, following an assessment of the current inventory of backlogged cases, several hundred cases have been identified for outsourcing to a private lab for testing. To date, 143 cases have been transported to the private lab. The remaining cases and cases that continue to be submitted to the DFS will be processed by the FCU. Select cases, as the need arises, will be sent to a private lab. This remedy, while affording some immediacy in the backlog reduction effort, is only temporary and very costly. From February 2014 through January 2016, **\$1.96M** was expended for outsourcing the state's drug cases. In addition, as indicated above, the NCCPD has not yet begun to submit their drug cases to the DFS. During 2015, **\$488K** was spent to process the NCCPD cases in a private lab. Additionally, in January 2016, another **\$500K** was approved for outsourcing the DFS cases as an immediate short-term remedy for backlog reduction. During the past 23 months, nearly **\$3 million** was appropriated for testing the state's drugs cases in a private lab. That said, this is only an interim "fix." While it provides immediate relief in backlog reduction, and better enables the FCU to address the remaining caseload in a timely manner, it also allows the FCU to implement a long-term, more effective strategy of selecting, hiring, and training new chemists who will process cases internally at a drastically reduced cost.

A Long-Term Solution

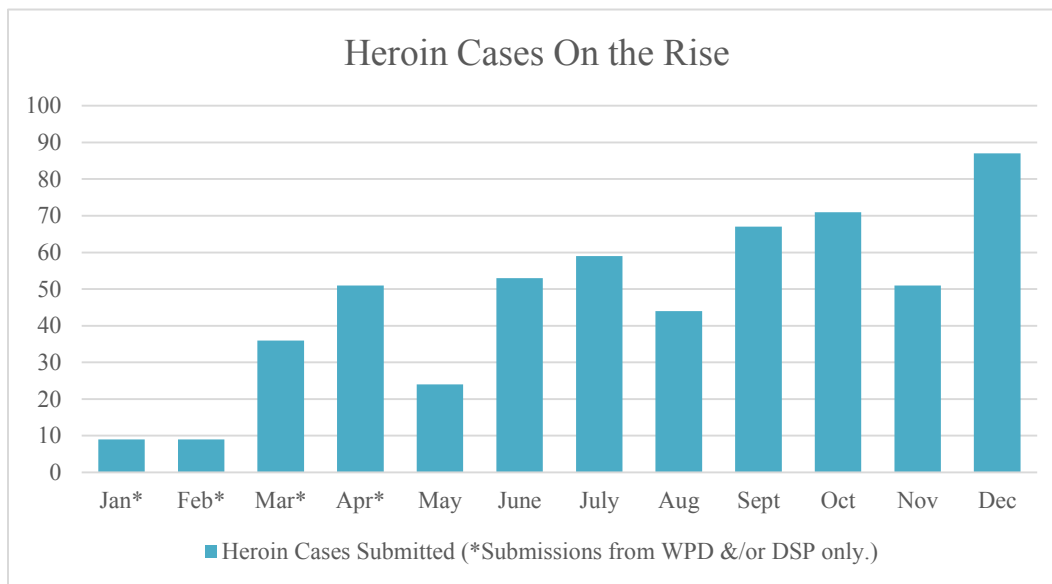
The number of chemists working in the CS Unit must be sufficient to:

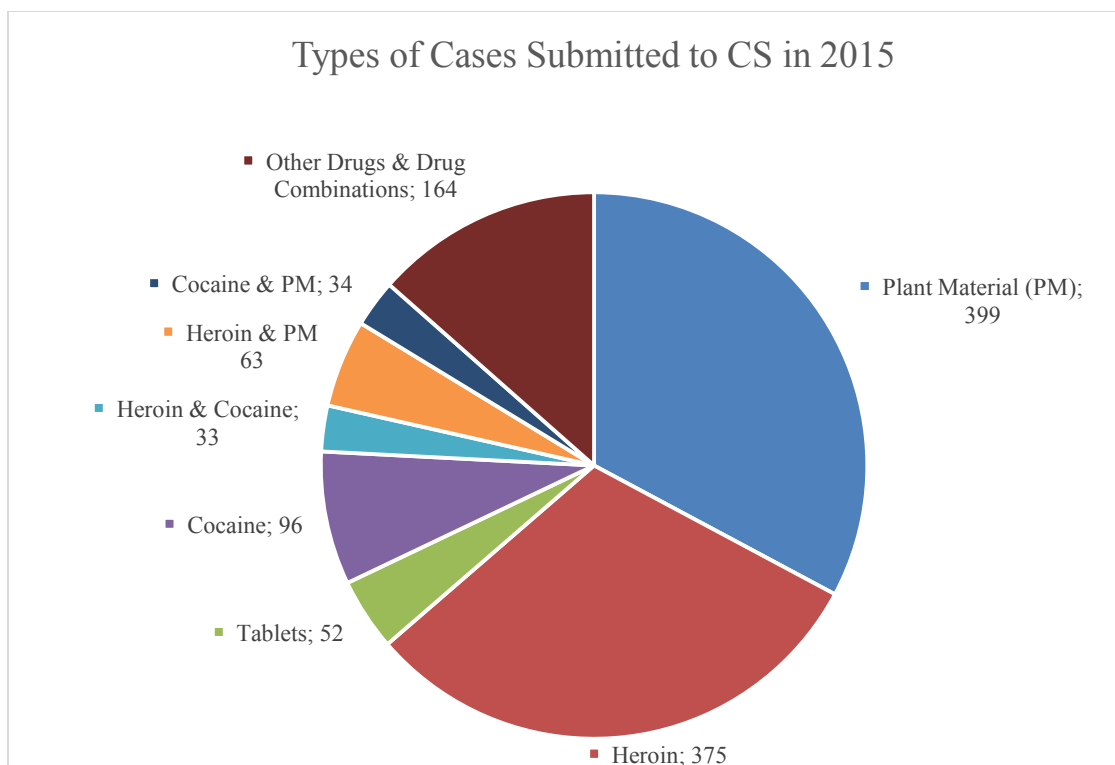
1. Address the increasing number of case submissions on a timely basis, especially in light of the new surge of fast-moving CCP drug cases.
2. Achieve a 60-day TAT.
3. Handle the dramatic increase in case submissions that will be forthcoming from the NCCPD.

As calculated above, the **chemist staffing level** for CS should be minimally set at 9.3, and **with inclusion of the NCCPD caseload and the abbreviated TATs for CCP drug cases, should be 12.**

Currently, there are two vacant chemist positions, and in addition to these positions, at a minimum, **at least five additional chemists will be needed to effectively handle the ever-increasing volume of submissions in a timely manner.** Three GC/MS and two FTIR instruments will also be required to accommodate personnel enhancements.

Data



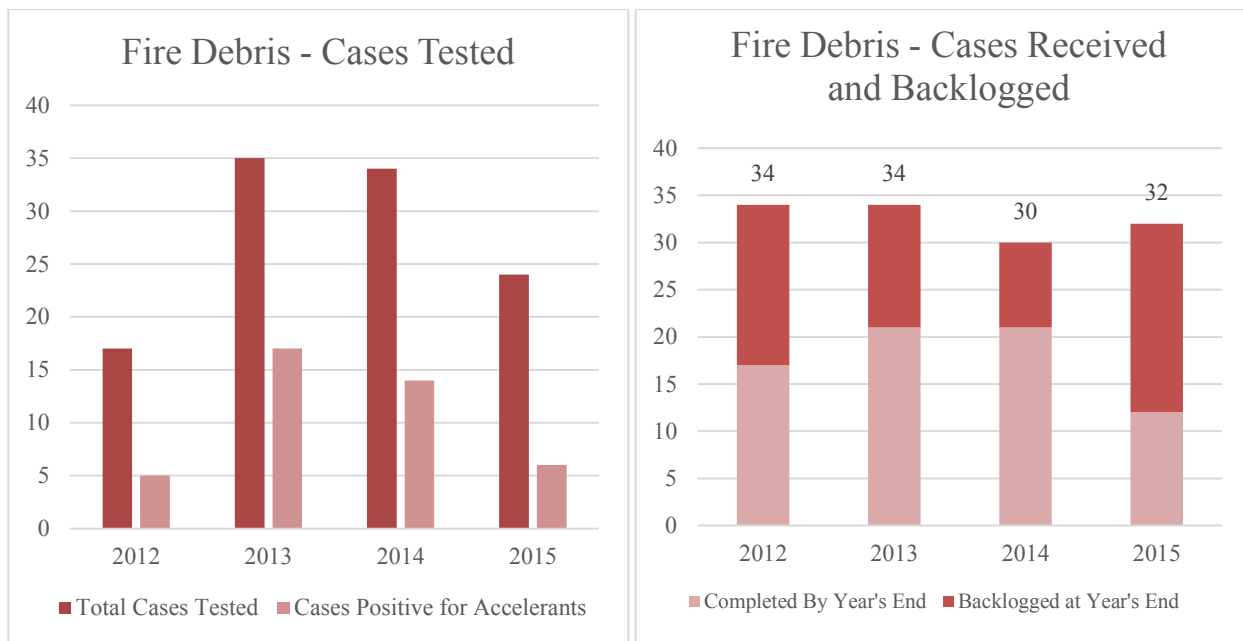


Controlled substances may be present in substrates such as powders, solid materials, liquids and plant material. In addition, the CS subunit examines pharmaceutical preparations in the form of tablets and capsules. The process of identification is two-pronged, the preliminary or presumptive test(s) and the confirmatory testing. The presumptive tests routinely involve screening the submitted evidence using color tests and/or microscopy and the confirmatory phase is accomplished through use of GC-MS.

Fire Debris

The Fire Debris subunit examines evidence collected from fire scenes. The purpose of these examinations is to determine presence of an ignitable liquid or material that may have caused or contributed to a fire. Most ignitable liquids or materials are petroleum products, although other non-petroleum products may also be potential arson sources. Extractions from submitted fire debris evidence are analyzed with a GC-MS instrument.

Goals for 2016 include evaluating and adjusting, if appropriate, the methods for the GC-MS used in fire debris cases, enhancing arson-related training, streamlining policies and procedures for reduced TATs, cross-training CS chemists to perform fire debris analysis, and upgrading or replacing the decade-old GC-MS instrument.



Summary: Testing of Fire Debris cases, as well as those testing positive for accelerants, both declined over the past three years. Fire Debris case submissions increased, as did the Fire Debris case backlog this past year.

Report from the Strategic Planning Advisory Committee



Delaware Commission on Forensic Science

Strategic Planning Advisory Committee

Report to the Commission

Major John Evans (Chair)-Delaware State Police

Amrita Lal-Paterson-DNA Technical Leader, Division of Forensic Science

Jessica A. Smith, M.S., Chief Forensic Toxicologist, Division of Forensic Science

Dr. Don Lehman, University of Delaware, Associate Professor

Lisa Morris, Delaware Department of Justice, General Counsel

Lisa Schwind, Public Defender's Office, Forensic Attorney

Kathy Jennings, State Prosecutor, Delaware Department of Justice

INTRODUCTION:

On June 24th, 2014, Governor Jack Markell signed Senate Bill 241, which in part created the Delaware Commission on Forensic Science. The Commission shall provide oversight and guidance to foster professionalism within, and the development and growth of, the Division of Forensic Science.

In December of 2014, Commission members approved the appointment of the *Strategic Planning Advisory Committee (SPC)* to assist the Commission in the performance of its duties and to advise the Commission on matters related to the development and adoption of a statewide forensic science infrastructure. The Committee's recommendations will help the Commission to evaluate and monitor the needs of the Division of Forensic Science, including to ensure that the Division is able to provide accurate, timely and responsive forensic science service to all members of the criminal justice community in Delaware and to suggest and support the implementation of improvements to the operations of the Division.

The (SPC) is comprised of seven (7) members with a Commission member acting as the Chair. The Committee members, who are listed on the cover sheet, bring with them a vast and broad experience in law enforcement, criminal defense and prosecution, forensic toxicology, DNA analysis and academia. The experience of the Committee members will provide a variety of perspectives related to the integration of forensic services throughout the state.

GOAL OF THE REPORT:

To offer recommendations to the Commission on Forensic Science to provide a state-of-the-art Forensic Science building to adequately house and consolidate forensic science services throughout the State of Delaware.

COMMITTEE OBJECTIVES:

The *Strategic Planning Advisory Committee (SPC)* identified several key objectives and action items to include the following:

1. An evaluation of the current Division of Forensic Science (DFS) building efficiency with a focus on design, work capacity and environment, I.T. support issues, security and parking.
2. Establish a synergy between forensic science disciplines focusing on consolidation of several disciplines into one group and at one location.
3. Establish a statewide bar coding system, whereby one system will code and track evidence.
4. The need to codify the relationship between (DFS) and the Department of Public Health from a health service perspective with respect to drug addiction deaths, epidemics, etc.
5. (DFS) staff retention and pay parity.
6. Pending legislation for offender DNA collection and retention.
(148th General Assembly, House Bill 141, tabled in committee)
7. Creation of an evidence destruction statute.
8. Development of internships with local academic institutions.

Although the above-listed (8) key objectives and action items have been identified by the (SPC), this initial report will focus only on objectives #1 and #2 related to the efficiency of the current (DFS) building and the needs of the building to provide adequate space, technology and security to consolidate forensic services at one location. Future reports will be submitted by the (SPC) to specifically address the other key objectives.

BUILDING EFFICIENCY:

The Division of Forensic Science building is currently located at 200 South Adams Street in Wilmington, Delaware. The original building was built in 1971 and included approximately 12,200 square feet. The building was initially designed to accommodate only the medical examiner's office, which has since morphed into a full service laboratory to include pathology, toxicology, DNA, arson and controlled substances. The building has undergone two expansions and currently encompasses approximately 33,850 square feet. At the request of the Department of Health and Social Services (DHSS), Andrews International completed a "comprehensive

evaluation of all security, administrative and scientific functions” of the (DFS), formerly known as the Office of the Chief Medical Examiner. The goal of the Andrews International (AI) evaluation was to assist the (DFS) with “achieving and maintaining the highest degree of efficiency and effectiveness by identifying opportunities for improvement”. Great strides have been made in addressing recommendations from the Andrews Report by upgrading the building over the last year with respect to the security system, phone system, I.T. system and HVAC system, along with providing access control to the evidence lockers. Despite these efforts, which came at a significant cost, there are still many concerns regarding the adequacy and viability of the current building and its ability to consolidate forensic services and obtain accreditation. In fact, it is the understanding of the (SPC) that the National Association of Medical Examiners (N.A.M.E.), the “gold standard” in the industry, has stated that the current facility will not successfully pass the next on-site inspection and will not be accredited by (N.A.M.E.). The (DFS) is currently pursuing accreditation by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB), which is recognized both nationally and internationally for its work in testing and evaluating labs.

In its review and evaluation, (AI) reported that the (DFS) “needs a new facility” and noted such issues as roof leaks, which could compromise evidence samples and instrumentation integrity, the inability of the HVAC system to properly control building temperature and humidity and inadequate laboratory space and security concerns. In addition, it was noted that the current building location cannot support future growth. As stated earlier in this report, current leadership within (DFS) has satisfied many of the concerns listed above, but these efforts are viewed as temporary fixes rather than long-term solutions. In an attempt to further evaluate current building conditions and efficiencies from the perspectives of the (DFS) employees, the (SPC) developed and distributed a survey on September 22, 2015. The survey was sent to employees both in the north (Wilmington) office and the south (Georgetown) office. The survey was anonymous and focused on working conditions/environment, building efficiency and building security. The survey was open for two weeks and closed on October 6, 2015. A copy of the survey is attached to this report.

It is important to note that there was an 83% response rate to the survey from the employees in the Wilmington office with 80% of those employees in the Georgetown office responding. This

strong response rate to the survey suggests that the (DFS) staff very much wants to be heard and involved in this process and it is indicative of their professionalism, dedication and commitment.

Although the reader of this report will have the opportunity to review the results of the survey in its entirety, a brief summary of some common issues and concerns are highlighted here. Regarding the Wilmington office, an average of 95% of the employees, who work in that facility are NOT satisfied with the overall building conditions. Comments described an “old and outdated” building with a leaky roof, minimal natural light and an “infestation of rodents and bugs”. 97% of those responding to the survey expressed concern with the HVAC system in the Wilmington office, citing poor ventilation, a shared system with the autopsy room where foul odors permeate the entire building and a frequently non-functioning heating and air conditioning system. 59% of the survey takers do not believe that they have adequate work space and that the physical layout of the lab areas is not optimal in terms of efficiency. With respect to technology, 74% believe that (DFS) is not keeping up with advancing technology due to the small and outdated building and a lack of funding.

93% of those taking the survey in the Wilmington office do not believe that there is adequate car parking for current staffing levels let alone visitors to the building. A safety concern was also shared by describing poor lighting and a “severely sloped” parking lot, which makes it treacherous in the winter with snow and ice. 70% of the (DFS) staff, who took the survey, are not satisfied with the Wilmington office location, citing safety, traffic and a lack of “outdoor space” for the employees.

The (DFS) office in Georgetown is a smaller and much newer facility, which opened in 2006 and is staffed by seven employees. 75% of those taking the survey are satisfied with the overall building conditions. 50% of the (DFS) staff at the Georgetown office agrees that the air quality in the building is good, while 50% strongly disagree, citing that the air handling system is inadequate to filter odors from the autopsy area. 100% of the survey takers believe that their working conditions are good and that they have adequate work space. Regarding technology, all of the survey participants believe that their building is not keeping up with advances, citing no on-site generator, limited access to Wi-Fi and cell phone coverage and a constantly non-functioning video conferencing system. There were no issues shared with respect to parking at the Georgetown office, and while most feel safe at the location, there was a suggestion for fencing around the

property and the installation of a magnetic/electronic lock system similar to the one in the Wilmington office.

SYNERGY AND CONSOLIDATION OF FORENSIC DISCIPLINES:

A second key objective of the (SPC) is to assist the Commission in determining the feasibility of consolidating forensic disciplines to one location in the state. For example, currently evidence to be tested for DNA analysis, fingerprint analysis, ballistic testing, computer and cell phone forensic examinations, etc. each go to different locations in the state to be tested. According to the Department of Justice, this causes delayed results and prohibitive costs. The effort to centralize in-house testing is critical in terms of efficiency and fiscal responsibility.

Ideally, when an investigator responds to a crime scene and observes evidence from that scene, which may include a body, blood, fingerprints, DNA, a gun, cell phone, etc., all of that evidence should be properly documented, collected and transported to one location for testing and analysis. This consolidation of forensic disciplines will result in quicker turn-around times on the analyses of evidence, which in turn will allow investigators to be better able to link and solve crimes faster.

SITE VISITS:

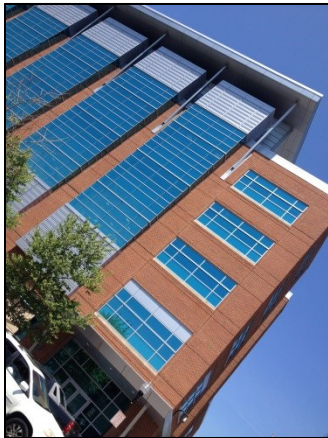
In its effort to provide the Commission with relevant comparators, the (SPC) traveled to several forensic science facilities in the surrounding area to assess the planning and design processes of their facilities. The (SPC) met with staff at these locations and toured the facilities as well. Detailed notes were taken at each location, but for purposes of this report, a list of the sites visited along with a snapshot of information from each site is highlighted in the chart and narrative below.

Agency	Location	Number of Employees	Approximate Square Footage	Age of Building	Cost of Building	Disciplines	Comments
Maryland State Police Forensic Science Laboratory	Pikesville, MD	*75-80 currently *105 – fully staffed	~68,000	9 Years Old	\$28 million to build	*Pattern evidence *Chemistry *Toxicology *Trace *Biology	Centralized Evidence Receiving area
State of Maryland Office of the Chief Medical Examiner	Baltimore, MD	83	120,000 (6 floors)	5 years old (opened in October 2015)	\$50 million	*Pathology (including Neuropathology) *Postmortem Toxicology *Histology	*Planning started in 2002 *Built facility with 25 year growth plan with expansion spaces on every floor
New Jersey State Police Office of Forensic Sciences – Central Regional Laboratory	Hamilton, NJ-Main Lab	*170 currently *237 – fully staffed	~195,000	12 Years Old	\$25 million to \$30 million	*Drug Chemistry *Toxicology *Trace and Arson *Biology *Anthropology *Ballistics	Building was converted from a warehouse.
Consolidated Forensic Laboratory	Washington, DC	250	357,000 (6 floors) (257,000 square feet of occupied lab and office space and 100,000 square feet of garage space)	3 years old (opened in October 2012)	\$228,000 million	*Pathology *Postmortem and DUI Toxicology *Forensic Biology, *Materials Analysis, *Firearms *Fingerprint Public Health Laboratory Division, and Crime Scene Sciences Division	*Rated Leadership in Energy and Environmental Design (LEED) Platinum, the highest designation, with a 30,000-square-foot living green roof and solar-shading panels
Armed Forces Medical Examiner System	Dover Air Force Base, DE	265	117,000	4 years old Morgue 12 years old	\$52.1 million	*Autopsy *DNA *Toxicology	Worldwide jurisdiction in the Military

Maryland State Police Forensic Science Laboratory



State of Maryland Office of the Chief Medical Examiner



The SPC visited the State of Maryland Office of the Chief Medical Examiner (OCME) on 05/14/15. This impressive facility, which provides Pathology and Postmortem Toxicology services, has been open for just over five years now. However, the planning of this facility started in 2002 and lasted eight years. This award-winning facility located within the University of Maryland's BioPark was built to not need renovations for 25 years as there are expansion spaces on every floor. Because there are 22 autopsy stations, this office promotes the utmost dignity and respect for the deceased as only one station is used per body per day to prevent cross-contamination. There are 16 Biosafety Level (BSL) 2 autopsy stations and 6 BSL 3 stations for infectious cases. The autopsy supervisor said that he and the Chief Medical Examiner “lived” at this facility for 18 months before they moved in, proving they were very involved in the design and construction of the building.

New Jersey State Police Office of Forensic Sciences – Central Regional Laboratory



Consolidated Forensic Laboratory



The SPC visited the Consolidated Forensic Laboratory (CFL) in our nation's capital on 07/23/15. This cutting-edge and award-winning facility collocates the Department of Forensic Sciences (DFS) and the Office of the Chief Medical Examiner (OCME). This building has been open since October 2012 and was under construction for 30 months. Rated Leadership in Energy and Environmental Design (LEED) Platinum, which is the highest designation, the CFL features a 30,000-square-foot green roof. Additionally, the facility was designed to have all office space on the south-facing side of the building to get direct sunlight, while the laboratory space is on the opposite side of the building.

Armed Forces Medical Examiner System



SUMMARY AND FINDINGS:

Again, the scope of this initial report from the (SPC) focuses on addressing key objectives #1 and #2 listed above, specifically an evaluation of the current (DFS) building and the feasibility of consolidating forensic disciplines at the current location.

The (DFS) facility located at 200 South Adams Street in Wilmington was constructed in 1971 and has been described by (DFS) staff members as being an old and outdated building, with insufficient parking, a lack of security and a poor working environment due to a less-than-adequate HVAC system, which is shared with the autopsy area. Both office and lab space is limited, leading to a less-than-optimal working condition in terms of effectiveness and efficiency.

Andrews International (AI) stated in their report that the (DFS) “needs a new facility”, citing many of the same concerns and issues that were shared in the survey taken by the (DFS) employees. In addition, the current building is not able to support any future growth.

The (DFS) facility is lacking in technology. The Department of Technology and Information (DTI) has reviewed the (DFS) technology and is working to move the (DFS) technological infrastructure and data from the Department of Health and Social Services (DHSS) to the Department of Safety and Homeland Security (DSHS). The (DFS) network is 20 years old and is in danger of catastrophic failure. (DTI) has been working to update the current security, phone and case management systems.

It is also the understanding of the (SPC) that the current (DFS) building itself will be an impediment to obtaining future accreditation.

As stated earlier in this report, (DFS) leadership has made tremendous progress in addressing and satisfying the (94) recommendations coming out of the Andrews International (AI) review and report. However, much of this work in the areas of technology, building security, the HVAC system and evidence access control have come at a significant fiscal impact and are temporary while being applied to an aging building with continual maintenance issues.

The (SPC) took advantage of the several state-of-the-art forensic science facilities in the surrounding area by meeting with their staff and touring the facilities. While the State of New Jersey and the crime lab in Maryland have separate locations for lab work and post mortem pathology, the Office of the Chief Medical Examiner in Baltimore, Maryland, the Consolidated Forensic Laboratory in Washington, D.C. and the Armed Forces Medical Examiner System at the Dover Air Force Base share one location for both. This common location for both the medical examiner and forensic science laboratories segments is the model currently used by the (DFS) in Delaware and is the model moving forward in terms of effectiveness and efficiency.

Without exception, the staff at each of the facilities visited described years of planning in terms of building design with the goal of providing safe and effective work environments. Processes and policies were established to maintain accountability and the integrity of evidence and the employees examining the evidence.

The square footage of the visited facilities on average is significantly larger than the current (DFS) building in Wilmington. This can be attributed to several factors. First, the limited lab and office space have already been described. Essentially, the current building is struggling to accommodate current staffing and equipment needs. Secondly, census reports and population growth charts were considered when building the newer state-of-the-art facilities so as to allow for future expansion. The current (DFS) location is inadequate in terms of expansion.

Consolidation and centralization of all forensic science disciplines is essential in terms of providing accurate, timely and responsive forensic science service to all members of the criminal justice community in Delaware. Justice demands no less. The State of Delaware must make an investment in forensic science by moving (DFS) from where it is today and into the future by providing a state-of-the-art forensic science building.

This process will likely take years to come to fruition, but it starts with a feasibility and architectural study of the current (DFS) location. The (SPC) strongly recommends to the Commission that funding be requested to conduct such a study.